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ABSTRACT

This instructor's guide accompanies the self-paced student training modules on floor covering, one of which is available separately as CE 032 883. Introductory materials include a description of the components of the pre-apprenticeship project, a discussion of the teacher's role in conducting the course, and scope and content of the four phases of training. The guide contains 13 units organized according to this format: title; instructional outcomes; introduction; and presentation, including a teaching outline of the unit and teaching methods and aids referenced to student modules. Job sheets and drawings are provided as needed. Topics covered in the units include the following: introduction to floor covering, diagnostic testing, survival skills, trade mathematics, physical requirements, safety, blueprint reading, trade tools, materials, subsurface preparation, floorlaying processes, and a floor covering project. An appendix contains an occupational analysis (task inventory) of the floor covering trade. (KC)

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INDIVIDUALIZED LEARNING SYSTEMS

PRE-APPRENTICESHIP

PHASE 1 TRAINING
Instructor's Guide

Floor Covering

Diagnostic Tests
Survival Skills
Math
Tools
Materials
Project

C00183

CG032882.

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INTRODUCTION TO PRE-APPRENTICESHIP

DESCRIPTION OF APPRENTICESHIP

The Federal Bureau of Apprenticeship identifies an apprenticeable occupation as a skilled occupation that requires a minimum of one year of 2000 hours on-the-job training. This on-the-job training and related educational training is the apprenticeable period.

VIEWPOINTS ABOUT PRE-APPRENTICESHIP

Pre-apprenticeship is viewed in many different ways by craftpersons, apprenticeship committees, educators and the general public.

Concerns about pre-apprenticeship include the belief that the pre-apprenticeship training will flood the market with applicants for apprenticeship or that these trainees will go to work in the occupation as partly trained workers or that pre-apprenticeship would be considered a guarantee of entry into apprenticeship. These conflicting viewpoints create problems for persons interested in apprenticeship training and make it difficult to operate pre-apprenticeship training programs.

NEED FOR PRE-APPRENTICESHIP

Pre-apprenticeship provides three benefits:

1. Provides a screening device to determine motivation, interest, manipulative aptitude and ability of persons to learn the skills of the occupation.
2. Provides the individual with survival skills for handling personal problems and interpersonal relations on the job that may include abuse and sexual harrassment.
3. Provides entry level skills to help make the apprentice productive from the first day on the job. The higher entry level skills of the apprentice provides an incentive for the employer to hire apprentices.

PRE-APPRENTICESHIP HELPS PEOPLE

To select a skilled occupation.
To identify the educational requirements of an occupation.
To experience the hands-on skills of an occupation.
To develop good work habits.

* Good job attendance
* Punctuality
* Dependability
* Time management

To develop good attitudes.

* Concern for the job
* Initiative
* Interest
* Healthy, cooperative working relations with fellow employees.

TRAINING LEVELS FOR PRE-APPRENTICESHIP

Pre-apprenticeship training can be separated into three phases or stages of training. These are:

PHASE 1

Provides the trainee with an opportunity to explore several occupations. This orientation to the drywall trade includes training in trade terminology, blueprint reading, tool usage, first aid and safety practices. This familiarization training includes hands-on experience in some of the basic skill areas together with information about the advantages and requirements of drywall. The choice of an occupation to train for in Phase 2 of pre-apprenticeship will be based on these experiences. If the trainee decides not to pursue this occupation any further, the training received to this point will be useful in every day life.

Phase 1 includes diagnostic tests to determine if reading or mathematical deficiencies exist that would handicap a person in the drywall trade. Remedial work will be provided to correct these deficiencies.

Success on the job is directly related to job attitudes, work habits, and the individual survival and coping skills. Training will begin on helping each individual attain full potential in these personal skills.

Interpersonal skills will be developed which include:

* Communication skills
  - paraphrasing, perception checks, non-verbal communication
  - communicating with superiors
* Personal effectiveness
  - problem solving, family relationships, sexual harrassment and pestering on the job.
* Interview techniques
  - apprenticeship committee interview procedure

PHASE 2

This training begins the serious preparation for an occupation. The training related to job attitudes, work habits and individual survival and coping skills will be continued from Phase 1 with more emphasis on the relationship to the job.

Manipulative skills will be developed by the completion of a series of projects involving basic trade skills which have a carryover benefit to persons outside of the occupation. At least 3/4 of the training will consist of hands-on experiences. This instruction should be conducted by a skilled craftsperson from the trade or occupation who has the necessary teaching skills.

The joint apprenticeship committee for the occupation will be invited to observe the progress of trainees during Phase 2 and to evaluate the potential for trainees for entry into apprenticeship. The participation of the appropriate joint apprenticeship committee is essential to the success of a pre-apprenticeship program. This community involvement insures that the training is relevant to the occupation and meets industry training standards.

At the completion of Phase 2 the trainee will have enough experience with the occupation to decide whether to continue with the training into Phase 3. The joint apprenticeship committee will have knowledge of the quality of the training program and will be in a position to judge the qualifications of the students for entry into the apprenticeship training program.

PHASE 3

Training is concentrated on improvement of manipulative skills so that the trainee will be a productive employee the first day on the job. This training can be either industry conducted specialized training, secondary school vocational programs or community college preparatory courses specifically related to the occupation. Trainees can also participate in co-op work experience involving hands-on training at the secondary or community college level. Hands-on training is considered essential for an effective pretraining program.

The Phase 3 training period provides the trainee with an opportunity to search for an employer willing to take an apprentice. Frequently the employer providing co-op work experience training will hire the trainee as a regular employee.

It is possible that some employers will hire the trainee without further training. Some of these employers train specifically for their own needs. In the process, job descriptions have become highly diluted. Instead of producing journeymen possessing a wide range of skills, companies have settled for specialists trained to perform the specific tasks needed in certain narrow operations. While this may be adequate to meet the special needs of an industry, it certainly will not meet the training and manpower needs of the nation in the future.

Apprenticeship provides a broad base of training by giving the apprentice a wide range of skills which insures continuous employment. Workers least vulnerable to unemployment are those with the highest and broadest skills and best training. The trainee should make every effort to enter an apprenticeship training program designed to provide training in all skills required

in the trade or go to work for an employer who will provide broad based training.

Each trainee will choose a joint apprenticeship committee meeting to attend during Phase 3 training. This will provide an opportunity for the trainee to become acquainted with members of the joint apprenticeship committee and to see how the committee functions.

PHASE 4 EMPLOYMENT AS AN APPRENTICE

Trainee enters apprenticeship training on a direct referral basis under agreement with the appropriate joint apprentice committee which permits persons trained in programs financed with federal funds to enter apprenticeship on direct referral. Direct referral eliminates several of the procedures in the selection process and makes entry into apprenticeship less cumbersome.

Not all joint apprenticeship committees use the direct referral system. This is the reason why sponsors of pre-apprenticeship training should directly involve joint apprenticeship committees in the operation of their programs. This provides committees with an opportunity to evaluate the effectiveness of pre-apprenticeship.

The federal Job Corps Programs enjoy direct referral placement in apprenticeship for their graduates. The Job Corps operates an ideal pre-apprenticeship program. Proposed sponsors of pre-apprenticeship training are advised to visit the nearest Job Corps Center to see how the programs operate.

The Job Corps Centers in Oregon are located at:

Angel Job Corps
Star Route North
Yachats, OR 97498
547-3137

Timber Lake Job Corps
Star Route Box 109
Estacada, OR 97023
834-2291

Wolf Creek Conservation Center
Little River Route
Glide, OR 97443
496-3507

Tongue Point Job Corps
Astoria, OR 97103

325-2131

Job Corps Centers in Oregon Offer Training in these apprenticeable occupations:

Carpentry	Plastering	Automotive
Cement Mason		Painting
Brick Laying	Tile Setting	

RECOMMENDED PROCEDURE FOR CONDUCTING PRE-APPRENTICESHIP TRAINING

ADMINISTRATION

Pre-apprenticeship training can be conducted by various sponsors. These include secondary schools, community colleges, unions, employer associations, labor/management training trusts and private groups such as O.I.Cs.

ADVISORY COMMITTEES

Use of broad-based community advisory committees is mandatory for pre-apprenticeship programs conducted by secondary schools and community colleges. Pre-apprenticeship needs the support and recognition of the community in order to be successful.

The advisory committee should have representatives from these groups:

School administration
- -high school principal
- -board members
- -vocational director
- -co-op work experience
- -T & I instructors

Community
- -school graduate in trade
- -member of joint apprenticeship committee
- -employer member of trade
- -employee member of trade
- -union business agent
- -industry training coordinator
- -representative of financial community
- -representative of press

Government personnel
- -ESD regional vocational coordinator
- -Oregon Division of Apprenticeship field representative
- -Federal Bureau of Apprenticeship representative
- -State Dept. of Education specialist

FINANCING

Vocational training programs generally cost more than academic programs because the student/teacher ratio is smaller, consumable supplies are required, and expensive equipment is needed. Resources to finance pre-apprenticeship training are available from a number of sources. These include:

Vocational rehabilitation	-tuition fees
Federal funds for immigrants	-Asian -Cuban -Spanish American
Special grants	-U.S. Dept. of Labor U.S. Dept. of Education CETA Industry State Dept. of Education Economic Development Administration
Secondary school funding	-basic school grant from federal funds
Community college funding	-basic state funding

INSTRUCTIONAL DELIVERY SYSTEMS

The type of sponsor for pre-apprenticeship training will determine the time-block used for the program. If training is started at the 9th grade level, a two-hour training period will generally be used. A half-day training period should be used for an accelerated program at the secondary level covering two years. Community college programs can be either half-day or full-day programs. Private sponsors generally will operate on a full-day basis.

Instructors for the trade specific training should be qualified craft workers. These may be employed on a part-time basis, or full-time, serving several programs. The necessity for skilled workers to teach the trade specific items of the program

cannot be over-emphasized. The work experience of skilled craft workers gives them the insight into the occupation needed for effective teaching.

MANIPULATIVE SKILL TRAINING

The manipulative skills or hands-on experiences provide the basis for a sound and effective pre-apprenticeship training program. Unless this training is available the program will not succeed.

Important considerations involve the following items:

Basic tools	-tools required for each participant
General or shop tools	-power tools (purchased or rented)
Materials	-purchased by training agency -purchased by others (training project sponsor) -donations by industry (defective goods)
Training facilities	-school based -community based
Training projects	-school maintenance work -simulated projects -community projects -private projects (non-profit organizations-low income persons)

COORDINATION WITH EXISTING PROGRAMS

Pre-apprenticeship should be coordinated with related programs in secondary schools and community colleges.

Welding	Electronics
Blueprint reading/drafting	Industrial mechanics cluster
Surveying	Construction cluster
Automotive	Electricity/electronics cluster

MISCELLANEOUS CONSIDERATIONS

Legislation, community support and political considerations will all have an effect on pre-apprenticeship training. Activities related to these concerns include:

Workshops and technical assistance	-State Dept. of Education
Publicity notices	-public service -newspaper -radio -translation to Asian/Spanish American
Civil rights	-effect of civil rights compliance
Transfer of learning	-benefits of vocational training to other occupational endeavors

COURSE OUTLINE

1.0 Introduction to Floor Covering

- 1.1 History
- 1.2 Trends
- 1.3 Working Conditions
- 1.4 Hiring Practices
- 1.5 Employment Opportunities
- 1.6 Wages
- 1.7 Common Worker Benefits
- 1.8 Trade Terminology

2.0 Diagnostic Testing

- 2.1 SATB

3.0 Survival Skills

- 3.1 Expectations
- 3.2 Communication Skills
- 3.3 Giving and Receiving Feedback
- 3.4 Dealing with Interpersonal Conflict
- 3.5 Group Problem Solving, Goal Setting and Decision Making
- 3.6 Wider Influences and Responsibilities
- 3.7 Indentifying and Developing Individual Strengths
- 3.8 Worksite Visits
- 3.9 Resumes
- 3.10 Interviews
- 3.11 Appropriate Work Habits and Attitudes

4.0 Trade Math

- 4.1 Math Diagnosis
- 4.2 Math Remedial

5.0 Physical Requirements

- 5.1 Physical Requirements
- 5.2 Developmental Processes

6.0 Safety

- 6.1 General Safety
- 6.2 Personal Safety
- 6.3 Fire Types and Prevention
- 6.4 Hygiene Safety
- 6.5 Hand Tool Safety
- 6.6 Power Tools

7.0 First Aid

7.1 First Aid

8.0 Blueprint Reading

8.1 Scaling and Dimensioning
8.2 Sketching
8.3 Drawing Types and Views

9.0 Trade Tools

9.1 General Tools

10.0 Materials

10.1 General Materials

11.0 Subsurface Preparation

11.1 Subsurfaces

12.0 Floorlaying Processes

12.1 General Processes
12.1.1 Carpet Processes
12.1.2 Vinyl Processes
12.1.3 Vinyl/Asbestos Processes

13.0 Project

II. WORD TO THE INSTRUCTOR

This course was designed to be a trade-related, self-screening, job exploration package, providing the student with basic trade theory, basic trade manipulative practice, projects and on-job-site visitations.

Further, it is to be implemented by instructors who are skilled in each of the general topics described in the course outline and expanded on in the instructor's guide.

The curriculum is comprised of two parts: 1) the instructor's guide, and 2) supporting modules and references which are specified in the instructor's guide. The instructor should seek other supporting resources where available or necessary.

The instructor should bear in mind that there are two broad objectives written into the design of this course: 1) that the student will receive instruction in the preapprenticeship mode of the trade (which is designed to enable him or her to gain enough exposure to the trade to (a) aid in making a career decision, and (b) facilitate entry into the trade), and 2) that the student will retain some carryover skills which he or she can use in life, even should the student decide not to enter the trade.

Essentially, this guide is patterned after a program begun in Oregon in 1979-80. The participants in the program are wholly CETA-sponsored, many with motivational or physical impairments. The program concentrates on providing motivational support and/or physical therapy. A typical program, broken down into its major components, would be:

40% hands-on, manipulative work
30% motivational support work
10% job visitation
5% physical development or therapy
15% class lecture, discussion, etc.

Not all institutions will have the resources, nor will all programs' students have the need, for such a breakdown. The instructor should identify the needs of the students and utilize the guide in the manner best suited to meet them.

III. RECOMMENDATIONS

Hands-on work is probably the best learning experience for students in trade work. It is essential if the two broad objectives listed above are to be met. Therefore, implied in the topics covering tools, materials and tasks or work processes is the notion (emphasized in the Instructional Outcome for these topics) that the student will practice using the tools and materials described therein.

In lieu of describing in the Teaching Methods and Aids section of the guide those tasks which will be performed with the described tools and materials, the writers leave it to the imagination and material resources of the instructor. Practice is the method by which skill is developed.

1.0 Introduction to the Floor Covering Trade

INSTRUCTIONAL OUTCOMES: The student will be able to identify and briefly explain the history, trends, working conditions, hiring practices, employment opportunities and wage scales of the trade, as well as working people's benefits and trade terminology.

INTRODUCTION: In order to become an effective worker or make an effective, realistic career decision, an individual must be exposed to various aspects of the trade.

PRESENTATION

TEACHING OUTLINE	TEACHING METHODS AND AIDS
1.1 History A. Use of floor coverings increased greatly after 1920s and into the 1960s, with extensive use of concrete flooring in residential and commercial buildings. B. Linoleum was the first smooth floor covering to be used; about 1860. C. Fraderick Walton was the inventor of linoleum and the straight-line inlaying machine, which markedly increased the variety of patterns.	Explain and Discuss ILS Introduction to the Floor Covering Trade

D. Linoleum and printed felt base production grew until the competition of newer materials. E. Asphalt tile production exceeded the demand for linoleum in the 1960s. F. Vinyl floor coverings were first produced around 1945. 1. Vinyl coverings offer a variety of types. 2. The proportion of yardage produced is about the same as linoleum.	
1.2 Trends A. Approximately 88,000 floor covering installers were employed in 1978. 1. Almost 4/5 of those installers worked with carpets, the rest worked with resilient flooring. B. Most installers work for flooring contractors, retailers of floor covering or repair contractors. C. About one out of three workers in the trade are self-employed, a higher percentage than most of the building trades.	
1.3 Working Conditions A. Installers work under favorable conditions compared to other construction trade workers.	Jobsite Visitation Invite Job Specialist

B. Work areas are often safe and comfortable because floor coverings are almost exclusively designed for interior use and display.

C. Physical demands may include kneeling, reaching, stooping, stretching and lifting heavy rolls of carpet.
   1. Even with continual movement and use of some hand and power tools, fewer injuries occur than among other construction workers.

1.4 Hiring Practices

A. Most floor covering installers learn the trade by working as helpers for experienced installers for 1½ years, or through formal apprenticeship programs.

B. Employers want applicants who are at least mechanically inclined, licensed to drive, and have a high school education.

1.5 Employment Opportunities

A. Employment for floor covering installers is expected to increase faster than the average for all occupations through the 1980s.
   1. Due to expansion in construction and more widespread use of resilient floor coverings and carpeting.

B. More job opportunities will be available for installers who can do both carpet and resilient flooring.	
1.6 Wage Scale A. Floor coverers earned between $7 and $9 per hour in 1978. 1. Apprentices and trainees earned approximately half the experienced workers wage. B. Installers are paid by the hour, receive a montholy salary, or are paid according to the amount of work they finish. C. Installers generally work regular schedules, unless circumstances require working evenings or weekends.	
1.7 Common Worker Benefits A. Unemployment Insurance 1. Purpose. a. transition from job to job. b. ease strain of layoffs. 2. Source of benefits. a. payroll tax on wages. 3. Eligibility. a. depends on base year earnings. b. depends on reasons for leaving work. 4. Level of benefits. a. level of base year earnings.	Explain and Discuss ILS Common Worker Benefits Invite Field Rep from Workmen's Compensation Board BOL Wage and Hour Employment Division

5. Claims process.
    a. report to Employment Division office.
    b. provide required information.
        (1) employer's name and address.
        (2) your social security number.
        (3) wage earning records.
        (4) current address.
6. Appeals/hearing process.
    a. initiated by worker.
    b. in writing.
    c. within time limits.

B. Wage and Hour Commission
1. Purpose.
    a. to investigate and attempt equitable settlement of wage claims.
2. Areas of claim review.
    a. pay periods.
    b. pay days.
    c. final pay days.
    d. wage payments in cases of dispute.
    e. methods of compensation and overtime.
    f. minimum wage laws.
    g. limitation of hours in certain industries.
    h. restrictions on employment of minors.
3. Jurisdiction.
    a. Federal vs. State.
4. Claim Process.
    a. contact wage and hour commission.

b. provide required information on appropriate form.
   (1) dates of employment.
   (2) rate of pay.
   (3) reason for non-payment.
   (4) estimate of disputed amount.
c. wage claim conference.
d. collection process.
e. protection against retaliation for filing a claim.

5. Time limits for filing.
   a. regular pay.
   b. overtime pay.

C. Workers Compensation

1. Purpose
   a. provide medical care payment for on-the-job accidents.
   b. provide time loss payments.
   c. provide payments for permanent disability.
   d. provide death benefits.
2. Source of benefits.
   a. employer premiums for insurance.
   b. employee contributions.
3. Level of benefits.
   a. complete for medical costs.
   b. varies according to level of final disability.
4. Eligibility.
   a. any job-related accident or condition causing the worker to leave work and seek medical treatment.

5. Claim process.
   a. report accident to employer.
   b. fill out claim form.
      (1) know your employer's legal name.
      (2) know your employer's insurance carrier.
   c. see your doctor for treatment.
6. Final determination.
   a. doctor's statement of stabilized condition.
   b. board's findings of disability and payment.
7. Reopening claim for aggravation of injury without a new injury.
   a. contact employer's insurance company if occurs within the first five years.
   b. contact worker's compensation board after five years.

1.8 Trade Terminology

A. Common Trade Terms

1. Carpet--fiber floor covering designed to spread from wall to wall.
2. Rugs--carpeting cut to fit areas less than wall to wall.
3. Rebond--shredded foam bonded together to form padding material.
4. Tile--floor covering material made of vinyl or vinyl asbestos mixture. Comes in pre-cut squares.

5. Underlayment--base material, often partical board, over which floor covering is laid.
6. Tack strip--pre-nailed strips used to fasten carpeting securely against edge of room. Two types designed for wood and concrete applications.
7. Mastics/adhesives--materials used to attach tiles and vinyl securely to subflooring.
8. Vinyl--man made plastic compound used to formulate sheet floor covering.
9. Seam--joint where two pieces of flooring are joined. May be stitched, taped or fused.
10. Grade--term used to denote quality of flooring.
11. Pile--length of fiber extending from carpet backing.
12. Lofting--fiber treatment to add bulk but not weight.
13. Gauge--number of ends of surface yarn per inch across carpet.
14. Pattern repeat--measurement denoting distance before pattern starts over again. Used for matching purposes.
15. Layout--marking centerlines for starting tile using a tape and chalk line.
16. Roller--weighted cylindrical tool used to press floor coverings into mastics or adhesives.
17. Utility knife--hand-held knife with replaceable straight edged blade, used to cut floor covering material.

18. Linoleum knife--hand-held knife with hooked nose blade used to cut linoleum and other sheet coverings.
19. Chalk line--chalk covered string used to mark layout on floors for tile.
20. Trowel--hand-held tool with serrated edged metal blade used to apply mastic and adhesives.
21. Stair tool--chisel shaped tool with broad, dull head used to secure carpet to tack strip.
22. Knee kicker--spring loaded device with adjustable resistance and teeth used to stretch carpeting.

2.0 Diagnostic Testing/Floor Layer

INSTRUCTIONAL OUTCOMES: The Student will complete a Specific Aptitude Test Battery (SATB), administered by a qualified examiner and will have the results explained by a qualified examiner.

INTRODUCTION: The General Aptitude Test Battery is a standardized test that has become recognized as the best validated multiple test battery in existance for use in vocational guidance. The tests are used by apprenticeship committees to assist in the screening process for appropriate candidates when apprenticeship openings occur, and to provide individuals with an indication of the probability of their being successful in a particular trade.

Many apprenticeship programs require applicants to have certain aptitudes as demonstrated by passing appropriate tests. For example, the applicant may be required to pass Specific Aptitude Test Battery (SATB) administered by the State Job Service. SATBs test two or more of the following nine general aptitudes: general learning ability (cognitive functioning), verbal aptitude, numerical aptitude, spatial aptitude, form perception (ability to perceive small detail), clerical perception (ability to distinguish pertinent detail), motor coordination, finger dexterity and manual dexterity.

Each battery tests different combinations of these nine general aptitudes because each occupation requires different specific abilities. The following SATB tests and cutting scores are required by the apprenticeship committee for the trade. The student should be aware of the trade requirements and determine how he or she feels about his or her abilities in the tested aptitudes in order to make a career decision.

PRESENTATION

TEACHING OUTLINE	TEACHING METHODS AND AIDS
2.1 SATB A. Complete exam described below Key: Trade Occupation Code # for the occupation SATB for the trade = Recommended cutting	

score for the trade
Location of the SATB within the GATB

FLOOR LAYER (CONST., RETAIL TR.) S#185
Numerical Aptitude = 85
Arithmetic Reason; Book II, Part 6
Computation; Book I, Part 3

Spatial Aptitude = 95
Three Dimensional; Book I, Part 3

Manual Dexterity = 80
#9 Place, #10 Turn, Board

	Cutting Scores		
	Adult	Grade 10	Grade 9
Numerical Aptitude	80	75	74
Spatial Aptitude	95	94	91
Manual Dexterity	85	79	76

B. Discuss Results:

3.0 Survival Skills/Floor Covering

INSTRUCTIONAL OUTCOMES: The student will learn and practice fundamental concepts in: a) dealing with expectations, b) communication skills, c) giving and receiving feedback, d) dealing with interpersonal conflict, e) group problem-solving, goal-setting and decision-making, f) outside influences and responsibilities, g) identifying individual strengths, h) appropriate work habits and attitudes, and, i) phases of job search and worklife.

INTRODUCTION: Training and proficiency in human relations skills are essential for successful adaptation to worklife. All too often in job preparation programs, these basic survival skills are neglected or put aside in favor of training in the technical aspects of work.

This topic describes the many skills necessary to become a stable, productive and satisfied worker.

PRESENTATION

TEACHING OUTLINE	TEACHING METHODS AND AIDS
3.1 Expectations A. Predicting the future 1. Self-fulfilling prophecies a. setting yourself up for failure b. thinking positively	ILS Survival Skills-Expectations PREPARATION Be familiar with the material beforehand, and think up some relevant examples AVAILABILITY Be available to students. Go around those students reading the material. Be prepared to answer and ask questions that increase students' understanding.

	ELICIT RESPONSE Ask individuals what they would like to do most of all. Use their reply even if it seems trite. Suggest two alternative possibilities--the worst and the best. Ask how each would affect that student's feelings and behavior at this moment.
B. Two-step process to opening up expectations. 1. Being idealistic and realistic a. being creative and having ideas	RELEVANT COMPARISONS Illustrate creativity from movies, TV or writing. Tell the beginning of a story and ask for suggestions on how it might end. Give the original writer's version. Show how anything is allowed in creative ideas.
b. keeping close to the facts	Suggest students read court reports or news coverage.
c. effects of leaving out one of the two steps.	STUDENTS' EXAMPLES Encourage extreme examples of fantasy and of sticking close to the facts.
d. combining the two	
C. Prejudice about other groups.	EXAMPLES OF PREJUDICE Show how stereotypes arise out of stereotyped expectations.
D. Being a winner	ROLE MODEL Be heard thinking positively. Encourage positive thinking in students.

E. Self-Assessment--looking at common personal expectations	IDENTIFY PROBLEM AREAS Go through questions to see where students are putting themselves down. Give encouragement. Ask what they want to change.
F. Post Assessment	EXPLAIN Read through examples, answer questions. FLEXIBILITY Allow students to demonstrate their understanding in less than suggested number of situations.
3.2 Communication Skills A. Good communication 1. two-way process 2. importance 3. innate abilities 4. showing mutual respect	ILS Survival Skills-Communication Skills. PREPARATION Be familiar with the material. BEING A ROLE MODEL Demonstrate active listening. Ensure that students voice problems and doubts. Allow frequent opportunity for students to give responses to on-going work.
B. Active listening. 1. Centering attention on the other person. a. being seen to be listening b. finding out what is important to the other person c. following the other person's lead d. listening to feeling 2. Checking that you have understood what the other person is communicating. a. checking feeling	Be ready to demonstrate bad examples of listening, to group or individuals, and contrast with good examples.

b. checking content c. when it is inappropriate C. Being listened to. 1. Your rights as an individual 2. When to keep quiet 3. Avoiding being aggressive 4. A three-step approach a. showing you understand b. taking responsibility for your own feelings c. suggesting alternatives D. Overall importance of respect for individuals 1. Communication between equals E. Self-Assessment 1. How individuals communicate with others F. Practicing the skills in triads 1. Active listener of personal experience 2. Role play being listened to	ASSERTIVENESS Draw examples from books on being assertive. Think up appropriate examples in work context. Discuss aggressive responses with individuals. Describe alternative approaches. Discuss possible exceptions--where aggression might be appropriate. INSTRUCTOR/STUDENT RELATIONS Assess relations in class in terms of respect for, and equality of, individuals. Ask students for comments. IDENTIFY PROBLEM AREAS Give help and encouragement. Find out from students what skills they want to practice. TRIADS Form triads (trios) as students finish Self Assessment. FEEDBACK Listen to one example of active listening in each triad. Give suggestions for improvement. Be open to alternative situations for the role play. Ensure students are willing to practice being sensitive to possible reluctance and shyness. Be prepared to role play yourself.

3.3 Giving and receiving feedback A. Importance of being able to give praise and criticism (introduction). B. Importance of group support and teamwork 1. Being a team member 2. Building a team a. knowing where you are b. pulling your weight c. responsibilities for others d. group aims and goals 3. Poor working environments a. indirect communication b. not knowing where you stand C. Reading attitudes 1. Hired or fired? 2. How do you come across to other people? 3. Interpreting other people's behavior D. Giving and receiving positive opinions 1. Importance of praise 2. Taking compliments 3. Giving praise E. Getting and giving criticism 1. Its importance 2. Being criticized 3. Avoiding being threatened 4. Between equals F. Self Assessment-Feelings and Preferences	ILS Survival Skills-Giving and Receiving Feedback PREPARATION Be familiar with the material and prepared to participate actively and equally. FACILITATION Facilitate continuously the building of group support. Give extra support to students who have difficulties participating fully. Enlist help of more confident and verbal to share the responsibility. Give support, but principally be a neutral chairperson or facilitator. Encourage group members to observe each others' non-verbal behavior between class times. POSITIVE REINFORCEMENT Give frequent verbal praise to individuals who are working well and to the group as it becomes more supportive MONITORING Walk around and ask permission to join in some partner discussions. Encourage greater depth. Avoid any judgments. Use paraphrase

	and feeling as checking skills.
G. Assignments 1. Telling individuals what you like	A DEVELOPING PROCESS Introduce when group is ready. First three assignments could be practiced even before module has been read. Explain, in turn each assignment to whole group. Deal with worries, doubts or questions before you begin.
2. Reading attitudes within the group. 3. Opening self-sharing important experiences	Use all your facilitating skills. Especially be sensitive to members' non-verbal responses. Follow up, after the class, on any individual who is upset. At all times encourage positive support within the group. Be prepared to intervene if criticism becomes too negative.
4. Receiving direct positive feedback 5. Receiving direct positive and negative feedback	
H. Post Assessment	Organize small groups or lead discussion of whole group. Use small groups to extend each individual's range of interactions.
3.4 Dealing with interpersonal conflict	ILS Survival Skills-Dealing with Interpersonal Conflict
A. Consequences of poor interpersonal relations	PREPARATION Be familiar with the material and ready to supply further relevant examples from the

B. Recognizing conflict in a work context 1. Open arguments 2. Possible causes 3. Consequences C. Them and Us atmosphere 1. The conditions you deserve 2. Whose responsibility? D. Unproductive ways of solving conflict 1. Finding someone to blame E. Productive ways of solving conflict 1. Taking responsibility for doing something about it a. when people feel threatened by you b. when you feel threatened F. Remaining passive. 1. Poor working conditions 2. Physiological and psychological problems 3. Irrational fears a. fear of not being liked b. fear of hurting others G. Action model for solving interpersonal conflicts 1. Choosing the best time 2. Taking responsibility for your feelings	world of work. BE AVAILABLE Encourage students to comment and question points as they arise. Ask them to come up with their own examples, either confirming or disconfirming the information. RESPONSIBILITY Throughout Survival Skills, individual responsibility is repeatedly stressed. Periodically, reassess your own role. Avoid being pushed into the "expert" stance. Try to be an impartial facilitator, encouraging student's learning without passing judgments. Ensure students take responsibility for what they want to achieve.

3. The four-step language formula. a. tell the other person that what he or she is doing is upsetting you b. speak your feelings c. describe how his or her behavior is affecting you d. suggest an alternative H. Negotiating 1. Give and take 2. Compromise I. Discrimination and prejudice 1. Different types 2. Dealing with it	
J. Self Assessment	IDENTIFY IMPORTANT GROUP ISSUES Deal in a neutral manner with examples of discrimination. Ask individuals for personal experience of racial and sexual prejudice and discrimination. Facilitate discussion on Equal Opportunity and Affirmative Actions. Invite solutions to problems from group members. NEW ISSUES Be aware of any controversial issues that arise during the Self Assessment. Introduce them to the group for general discussion.
K. Assignments 1. Sharing in small groups.	ORGANIZE GROUPS Form groups as students finish writing. Limit talk to five minutes on each topic. Maintain some urgency by announcing the five minute intervals.
L. Post Assessment 1. The formula	COLLECT WORK Read and make encouraging

2. Personal examples	written comments. Arrange contract for completion of work with any students who produce low standard work.
3.5 Group Problem Solving, Goal Setting and Decision-making	ILS Survival Skills-Group Problem Solving, Goal Setting and Decision-Making
A. 10-step model 1. Define the problem 2. Look at the known facts a. what is happening b. who is involved c. when does the problem occur d. where does it occur e. why has it become a problem 3. Agree on your goals 4. Pool ideas for achieving your main goal without evaluating them 5. Look more closely at some of the more interesting and unusual ideas 6. Include any other ideas that you think might be helpful 7. Agree on some guidelines for achieving your goal a. be specific about minimum behavior required 8. Decide on a plan to implement your proposed solutions 9. Assess the likelihood of success 10. Evaluate the success of your decisions after they have been implemented.	PREPARATION AND MATERIALS Know the 10-step model without having to refer to it on the page. Work through the process beforehand. Have photocopies of the model. Have ready one large newsprint pad and one marker for every five students. Choose about six examples of unusual tools or materials that students are unlikely to have seen. Have them ready, but hidden. Get advice from specialists beforehand. AVAILABILITY Go around students in class while they are reading material. Help them understand the 10 steps.
B. Self Assessment	CHECK LACK OF UNDERSTANDING Look over individuals' answers. Give help for misunderstandings.

C. Assignment in small groups

1. Producing quality of ideas
2. Practice in thinking creatively

MATERIALS REQUIRED

Sheets of newsprint and sufficient markers

ARRANGE GROUPS

During these assignments, there may be laughter and a lot of excited talk. Encourage composition of groups on basis of who works well together rather than primary friendships. Keep groups separated by space. Go around groups, sit in and participate. Keep up speed of work by giving limited time to gather ideas.

Invite spokesperson from each group to report back on ideas. Write down ideas as they are given and summarize range of proposed solutions.

3. Identifying unusual objects.

OBJECTS REQUIRED

Supply one object for each group. Choose trade tools or materials that most students are unlikely to have used.

4. Quality circle

MONITOR PROGRESS

Encourage written records of proposed solutions. Ensure all members of each group take some responsibility for finished product. If possible, get results typed out so they can be shared within larger group.

D. Post Assessment	PREPARE HANDOUT Have copies of 10-step model. Make sure students check what they have written and correct it. PERSONAL EVALUATIONS Invite students to read out or tell others what they wrote under 2 in the Post Assessment.
3.6 Wider influences and responsibilities A. Relations with people in authority 1. Formal workplace a. job titles b. hierarchy 2. Informal workplace a. unwritten rules and unstated expectations 3. Showing respect and being relaxed	ILS Survival Skills-Wider Influences and Responsibilities PREPARATION Be familiar with the module and gather useful newspaper cuttings, brochures and leaflets that illustrate the range of possible influences on somebody settling down to work. BE A READY RESOURCE Give examples informally to students from personal experience to back up information. DRAW ON STUDENTS' EXPERIENCE Encourage individuals to think of relevant illustrations from their own experience in a work setting.
B. Relations with family and friends 1. Changes in responsibilities 2. Affects of changes on old relationships a. being prepared b. communicating problems 3. Planning quality time a. keeping work problems at work b. maintaining relationships	

4. Keeping up leisure activities 5. Home problems at work a. leaving problems at home b. serious problems C. Other influences 1. apprenticeship 2. union 3. social organizations 4. other workers 5. state and federal agencies	
D. Self Assessment	SUPERVISION Ask students to show their answers to the Self Assessment. Since it is a test of comprehension, follow up on any difficulties revealed.
E. Assignment	CHOOSING PARTNERS Encourage students to work with someone different each time. After majority of students have completed assignments, hold a report-back session with whole group. Ask students to summarize and draw conclusions from reports given.
F. Post Assessment	DEMONSTRATE Show what is required by illustrating it on a chalkboard.

3.7 Identifying and developing individual strengths A. Evaluating yourself and others 1. Expectations 2. Personal theories a. predicting b. controlling B. Identifying personal values 1. Significant role models 2. Eliciting personal constructs 3. Bi-polar nature of constructs	ILS Survival Skills-Identifying and Developing Individual Strengths PREPARATION Work through module beforehand. Acquaint yourself with any areas that might cause difficulties in understanding. Make extra copies of exercise sheets. Refer to ILS Expectations. AVAILABILITY Be at hand throughout this module. For students to discover significant things about themselves, instructions must be followed closely. Ensure that students have had a personal relationship with each of people listed in right column. Ask them to put names they used to address these people. Check students' understanding of procedure. If necessary, go through method with whole group. Ensure that the description is of importance to each student and not superficial, such as hair color, etc. Stress that there is no correct answer; it is important for each person to write what seems opposite to him or her personally regardless of what anyone else might say.

4. Identifying important personal values	ARRANGE PARTNERS Go around and offer interpretations if requested or encourage students to draw conclusions. Ask what they recognize and what is new.
5. Evaluating yourself. a. as you feel you are b. as you would like to be c. looking at the amount of congruity	DISCUSS WITH INDIVIDUALS OR SMALL GROUPS Be tentative about what is identified. The conclusions can only be significant if the individual finds them significant. Use words and phrases such as..."it seems...," "you may..." "I would guess...." "it might indicate.." Use grid to prompt questions rather than answers.
6. Evaluating significant others a. comparing ratings	IN PARTNERS Suggest each student in turn tries to describe what people the other one might like and what people he or she might not like, based on the constructs on paper. Ensure that students follow instructions closely. Encourage them to search for all influences. If they have difficulty, suggest situations where students make choices, e.g. career, friends, classes, out-of-school activities.
C. Influences on personal decisions 1. How much are you in control of your own life? 2. Positive and negative influences. a. other people b. aspects of self c. organizations	

D. Time management 1. Organizing skills 2. Being responsible for your own life 3. Prime time 4. Making a time chart a. procedure b. interpretation	EXTRA COPIES Have ready prepared extra copies of time chart Ensure agreement on completing time chart. Go over method of calculating actual time. Illustrate on chalkboard or newsprint paper; give example of one day's record. Use tally system. CHECK STUDENTS' UNDERSTANDING Do this before anyone starts recording. It might be advisable to go over procedures one day ahead and practice be done in class.
E. Post Assessment 1. Personal values 2. Influences 3. Use of time	Collect, read and hand back during class. Give encouraging comments.

3.8 Worksite Visits A. Building realistic expectations 1. Questioning job descriptions 2. The human side of the job 3. On-the-job visits 4. Talking with people in the trade B. Group visits 1. Exposure to different working environments 2. Practice in observation 3. Asking questions C. Individual visits 1. After working hours 2. Interviewing the worker 3. Arranging the visit D. Self Assessment-Comprehension E. Assignment 1. Looking at Help Wanted ads	ILS Survival Skills-Finding a Job Worksite Visits PREPARATION Arrange with any company that allows it a group visit during working hours. Have sufficient copies for use by whole class of Help Wanted ads from local newspapers. Become an informed source of possible contacts for student interviews with journeymen and apprentices. CHECK UNDERSTANDING Ensure students comprehend all of the material before making any contacts or visits. HELP WITH ASSIGNMENTS Supply Help Wanted sections--one to each student. Suggest they read through and circle in ink interesting ads. Stress importance that each works on his or her own; it is practice in looking for jobs. Collect what students write and report back

	to whole group with summary of students findings.
2. Writing realistic job descriptions.	Read and comment on students' descriptions. With individual's permission, read out selection to whole group and invite comparisons with job descriptions in newspaper.
3. Contacting a journeyman or apprentice	Supply names and encourage students to come up with own contacts. If necessary, two students could team up to make a visit. Role play telephone contact and get students to copy out suggested questions. Make individual contract with each student, setting deadlines to call, to visit and to report back. Check on progress and share with rest of group.
4. Asking questions	Arrange for individuals to report back to whole group at same session.
5. Making a group visit	Go over observations and questions beforehand. Ask students to write questions down. Divide questions, and order of asking, among group. Add any other questions suggested by group.
6. Reporting back	Ensure that each student records his or her observations. Invite individuals to report on their feelings and findings.
7. Discussion	Lead group discussion on overall findings.

3.9 Resumes A. Nature and function 1. Self advertisement 2. Summary of strengths and skills 3. Different ways to use resumes 4. Contrast application forms B. Extracts from resumes 1. People with little work experience 2. Presenting the best interpretation of the facts C. Suggested format 1. Position desired a. finding out about the job b. matching your skills 2. Education 3. Relevant work experience 4. Other relevant experience 5. Personal data 6. References a. making a list of your achievements D. Identification of your skills 1. Personal and interpersonal skills 2. Skills used in leisure and work activities a. what could go wrong b. what skills you need to avoid mistakes c. stamp collecting d. planting a garden E. A professional finish 1. Typing 2. Paper	Arrange another worksite visit. ILS Survivial Skills-Finding a Job-Resumes PREPARATION AND MATERIALS Large pad of newsprint and sufficient markers for group. Ensure that there are adequate flat surfaces.

F. Cover letter 1. Why them? 2. Why you? 3. Let's meet G. Self Assessment 1. Personal and interpersonal skills	HELPING WITH ASSIGNMENTS Be available throughout, when students are working on Self and Post Assessment. Write on chalkboard further suggestions of personal and interpersonal skills.
2. In a job context	Suggest students help each other in finding relevant examples of their application of skills.
3. Analyze three examples of work	Allow partners to choose each other. Emphasize broad definition of work to include paid and unpaid, part-time, etc. Give examples. Model how students can help each other. Go around and ask questions to elicit relevant information.
H. Post Assessment 1. Organizing personal work experience	Supply sheets of newsprint and markers. Tell students to use the full area of paper. Check that students are recording all the suggested information. Inspect sheets individually and suggest best way to organize data. Advise on where to include or omit dates and which experience to group or

2. Writing a draft resume	separate. Give encouragement and direct help with drafting of resume. Take best draft, type it and duplicate it on quality colored paper. With permission of student, share with whole group. Encourage sharing of draft resumes. Offer to help later if individuals want to develop a finished version of resume.

3.10 Interviews

A. Subjective nature of interviews
   1. Content of hiring interviews
   2. Interviewers' opinions
   3. Interviewees' opinions

B. Facts and opinions
   1. Giving honest opinions
   2. Interpreting facts
   3. Quoting references and examples
   4. Deciding what is relevant

C. Employers' expectations
   1. Objective measures of aptitude and achievement
   2. Appropriate attitudes and work habits

D. How to communicate interest and enthusiasm
   1. Be genuine
   2. Be informed
   3. Showing enthusiasm
      a. non-verbally
      b. how to speak and what to say

E. How to communicate that you will be a good worker
   1. Finding examples

F. How to show you are trainable
   1. School and non-school

G. How to show you work well with people
   1. Relations with the interviewer
   2. Giving examples

H. How to be realistic about what you want
   1. Knowledge of the work environment
   2. Knowledge of the career structure
   3. Answering questions about goals

ILS Survival Skills-Finding a Job-Interviews

PREPARATION AND MATERIALS

Read material beforehand and recall examples from own experience. Have two copies of observers' checklist for each student.

I. Appearance
  1. Clothes
  2. Grooming

J. Non-verbal behavior
  1. Punctuality
  2. Nervousness
  3. Body posture
  4. Gestures
  5. Smoking and chewing

K. Being positive
  1. About yourself
  2. About others

L. Self Assessment
  1. Role play
    a. interviewer
    b. interviewee
    c. observer
  2. List of questions
  3. Checklist

M. Post Assessment
  1. Interview in front of the group
  2. Questions from Joint Apprenticeship Committee
  3. Giving positive feedback

FORM TRIADS

Go through checklist to ensure understanding. Choose best working groups. Keep it moving by limiting time for each role play. Be willing to model positive answers in interviewee's role.

Ask for a volunteer, then allow him or her to select next interviewee. Suggest use of observer's checklist, plus any other positive comments. Give feedback from group and yourself, immediately after each interview. Invite interviewee to share his or her feelings experienced during role play.

3.11 Appropriate work habits and attitudes A. Surviving on the job. 1. Keeping informed	ILS Survival Skills-Finding a Job -Appropriate Work Habits and Attitudes BE A RESOURCE Share personal experience with individuals. Encourage students to ask any older people about work habits and attitudes. Give time for sharing students' findings.
B. Employer's expectations 1. Being punctual and dependable 2. Being honest 3. Being loyal 4. Being willing to learn and able to take criticism	Show relevance of previous modules to both 2 and 3. Ask individuals what expectations a member of Survival Skills class has.
C. Expectations of fellow workers 1. Proving your competence 2. Being reliable and dependable 3. Being a learner 4. Being enthusiastic and interested 5. Being honest and loyal	POSSIBLE DISCUSSION What do individuals expect of friends? What are peer group's attitudes toward 4?
D. Proving your competence to your supervisor 1. High standard of work 2. Keeping a written record of your achievements 3. Showing initiative 4. Taking on responsibility 5. Asking for help	
E. Interference of personal habits 1. Substance abuse 2. Seeking help	Be sensitive to possibility of substance abuse affecting student performance. Learn physical indicators; have referral addresses available.

F. Self Assessment

G. Post Assessment

Check comprehension.

Tell students to repeat reading and doing Post Assessment until acceptable standard is reached. Discuss with individuals any disagreements over appropriate answers and be flexible.

SUGGESTED READINGS:

Alberti, R.E. and Emmons, M.
Your Perfect Right
Impact, 1974.

Blicq, Ron
On the Move: Communication for Employees
Prentice-Hall, 1976

Bolles, Richard N.
The Three Boxes of Life
Ten Speed Press, 1978

Fast, Julius
Body Language
Pocket Books, 1971

Chapman, Elwood N.
Your Attitude is Showing: A Primer on Human Relations
Science Research Associates, 1972

Ford, George A.
Planning your Future: A workbook for Personal Goal Setting
University Associates, 1976

McCay, James T.
The Management of Time
Prentice-Hall, 1977

Nelson, Robert E.
Decision Making
Vision Publishing, 1976

Peale, Norman V.
The Power of Positive Thinking
Prentice-Hall, 1952.

4.0 Trade Math

INSTRUCTIONAL OUTCOMES: The student will complete a diagnostic examination to determine his or her level of math competency, and will receive instruction in those areas of mathematics in which he or she experiences difficulty.

INTRODUCTION: People in every apprenticeable occupation routinely use mathematics in their work. The skilled worker who can perform fast and accurate math calculations can work quickly and efficiently.

PRESENTATION

TEACHING OUTLINE	TEACHING METHODS AND AIDS
4.1 Math Diagnosis A. Used to test skills 1. Math diagnostic exam, attached, or other suitable exam.	Explain "placement exam" concept Administer exam Grade performance
4.2 Math Remedial A. Used to upgrade skills 1. Modules, as listed, improve performance levels.	Assist student to achieve performance level

ILS	Math--Linear Measurement	
ILS	Math--Whole Numbers Addition Subtraction Multiplication Division	
ILS	Math--Addition & Subtraction of common fractions and mixed numbers	
ILS	Math--Multiplication & Division of common fractions and whole and mixed numbers	
ILS	Math--Compound numbers	
ILS	Math--Percent	
ILS	Math--Ratio and Proportion	
ILS	Math--Decimals Addition Subtraction Multiplication Division	
ILS	Math--Perimeters Areas and Volumes	
ILS	Math--Circumference and Area of Circles	
ILS	Math--Areas of Plane Figures, Volumes of Solid Figures	
ILS	Math--Metrics	

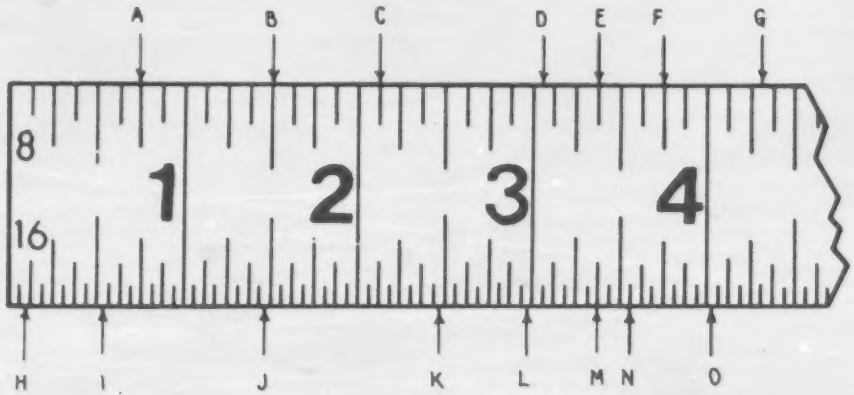
4.0 Trade Math Diagnosis
Placement Test

Name _____

Date _____

1.

Read the distance from the start of the ruler to the letters A through O to the nearest 1/32".



A= _____ F= _____ K= _____

B= _____ G= _____ L= _____

C= _____ H= _____ M= _____

D= _____ I= _____ N= _____

E= _____ J= _____ O= _____

2.

686 + 240 + 1,320 + 16 + 400 =

40 - 16 =

292 X 16 =

180 ÷ 5 =

A contractor buys 400 sacks of rock for three different jobs. On the first job he uses 78 sacks; on the second, 85 sacks; and on the third, 205 sacks. How many sacks does he have left?

A contractor's bid on a school building is $78,265. When one wing is omitted to cut costs, he is able to cut his bid by $16,228. What is his new figure?

3.

If a bundle of rock lath weighs 35 lbs. and it is permissible to place 700 lbs. on any one area on a floor, how many bundles can be placed on any one area?

If 5 lbs. of putty are required to install one light of glass, how many lights can be installed with 85 lbs.?

4.

The improper fraction 48/32 expressed as a mixed number is:

The mixed number 4 3/8 expressed as an improper fraction is:

What is the least common denominator for the following group of fractions: 1/8, 1/2, 1/4, and 1/12?

What is the sum of the following fractions: 7/8, 3/4, and 9/16?

If 3/4 is subtracted from 11/12, the difference is:

The sum of 1 5/8, 2 11/64, and 19 1/4 is:

5.

One roof is 1/3 larger in area than another. The smaller roof takes 24 squares of roofing material. How many squares of roofing material will the larger roof take?

One-third of a box of glass is needed to glaze the north elevation of a building; 2/3 of a box is needed to glaze the south elevation; 1/16 of a box is needed to glaze the east elevation; and 1/2 of a box is needed to glaze the west elevation. How many boxes are needed to glaze all four elevations?

From a bundle containing 101 linear feet of molding, a cabinetmaker uses the following amounts: 11 1/3', 8 3/4', 12 1/8', and 9 5/8'. How many linear feet of molding does he use in all?

6.

The product of 1/2 X 7/8 is:

The quotient of 1/4 ÷ 1/3 is:

If a roll of carpet weighs 467 1/2 lbs. and a running foot of the carpet weighs 2 1/8 lbs., how many running feet are in the roll?

A piece of pipe must be cut to 3/8 the length of another pipe, which is 9' long. How long a piece must be cut?

7.

Write each of the following as decimals.

Seven tenths

Sixteen hundredths

Fifteen thousandths

Eleven ten-thousandths

Two thousand one hundred fifty-two thousandths

Convert each of the following measurements to feet in decimals.

4' 6"

2' 4 1/4"

A house with a floor area of 1,860 sq. ft. is estimated to cost $18,042. What is the cost per square foot?

A stack of plastic sheets measures 2.28" thick, and it is known that the sheets average 0.06" in thickness. How many sheets are in the stack?

8.

The labor cost for the concrete work for a house was $248. The material cost $210. What percent of the total cost of the concrete work was for material?

An architect indicates a 1/8" = 1'0" scale in the drawing of a swimming pool. What is this scale expressed as a ratio?

On a tile job in which fireclay is to be used, a tilesetter tells his helper to mix mortar according to the following formula: 6 buckets of river sand, 1 bucket of fireclay, and 2 buckets of cement. What is the ratio of sand to fireclay in the mixture?

9.

Divide 19' 2" by 3' 10".

How many pieces of 2' 3"-wide gypsum lath will be needed to cover a wall 48' 6" long?

10.

What is the perimeter of a room 20' wide and 30' long?

What is the area, in square feet, of a floor 42' by 42'?

How many cubic yards of dirt have been removed for the basement and foundations of a house if the excavation is 35' long, 35' wide, and averages 5' deep?

The area of a circular putting green with a radius of 17' is how many square feet?

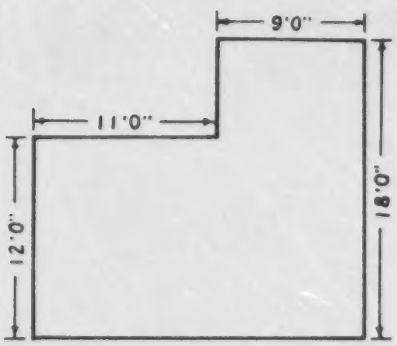
What is the area of a circular floor with a diameter of 10' 6", to the nearest square foot?

What is the area, in square inches, of an acute triangle with a base of 8 1/2' and an altitude of 11 1/4"?

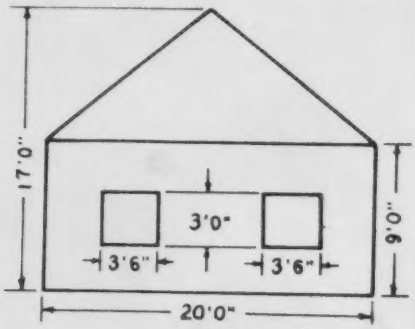
What is the area in square feet, of the floor shown below?

How many cubic yards of concrete will be needed for the foundation walls and footings in the plan below if the walls are 6" thick and 18" deep, and if the footings (shown in dotted lines) will require 2 5/27 cu. yd. of concrete?

1. 6
2. 6 2/3
3. 7
4. 7 1/6



What is the total area, in square feet, of the exterior wall and gable shown below, excluding window areas?



11. Metrics

3 inches	=	cm
5.4 inches	=	cm
7 feet	=	m
3.2 feet	=	m
6.5 yards	=	m
15.3 m	=	inches
12.7 cm	=	inches
50.8 mm	=	inches

5.0 Physical Requirements/Floor Covering

INSTRUCTIONAL OUTCOMES: The student will demonstrate knowledge of physical requirements of the trade and the processes of physical development.

INTRODUCTION: The trade requires certain physical skills and abilities of the worker. It is necessary that the student be aware of the physical demands of the trade and understand factors of physical development.

PRESENTATION

TEACHING OUTLINE	TEACHING METHODS AND AIDS
5.1 Physical Requirements A. Strength 1. Lifting. a. material and equipment weighing 20 to 100 lbs. (e.g. boxes of floor tiles). 2. Carrying. a. material and equipment weighing 20 to 100 lbs. (e.g. pieces of carpet). 3. Pushing. a. unrolling pad and carpet. 4. Pulling. a. stretching aligning pad and carpet.	On-site visit or classroom simulation. A. Demonstrate B. Lead discussion or question on job site C. Discuss proper technique D. Administer work sheet

B. Balance
   1. Balancing.
      a. long, awkward rolls of material.

C. Body Dexterity
   1. Stooping.
      a. reaching down to floor level.
   2. Kneeling.
      a. laying tile.
   3. Crouching.
      a. laying tack strip.
   4. Crawling.
      a. moving while stretching carpet.

D. Manual Dexterity
   1. Reaching below shoulder.
      a. picking up material from floor level.
   2. Handling.
      a. grasping tools.
   3. Fingering.
      a. grasping and aligning tile.
   4. Feeling.
      a. checking for even surface at joints.

E. Talking.
   1. Normal communication.

F. Hearing
   1. Normal communication.

G. Vision
   1. Normal vision.
      a. movement around jobsite.

2. Acuity near.
    a. joint/seam alignment.
3. Acuity far.
    a. overall surface appearance.
4. Color vision.
    a. matching material colors.

H. Coordination
1. Hand-arm.
    a. laying out material.
2. Foot-leg.
    a. using knee bar.

PHYSICAL ACTIVITIES PRESENT IN THE TRADE: REQUIREMENTS (to be completed by student)

STRENGTH	Weight	Frequency	BODY DEXTERITY	Degree of Activ.	Frequency	MANUAL DEXTERITY	Degree of Activ.	Frequency
Lifting			Stooping			Reaching-above shoulder		
Carrying			Kneeling			Reaching-below shoulder		
Pushing			Crouching			Handling		
Pulling			Crawling			Fingering		
BALANCE	Need	Frequency	Standing			Feeling		
Climbing			Sitting			TALKING (speech)		Frequenc
Balancing			Walking			HEARING	Acuity	Rang
VISION	Need	Frequency	Reclining			COORDINATION	Degree	Frequenc
Normal vision			VISION (Cont'd)			Hand-arm		
Acuity-near			Color vision			Foot-leg		
Acuity-far			Field of vision			Eye-Hand-Foot		
Depth perception								

5.2 Individual Developmental Processes A. Maturation 1. Causes physical changes in height and body proportion. 2. Causes emotional changes. 3. A gradual process. 4. Fluctuates from person to person. B. Nutrition 1. Vital to normal growth and development. 2. Essential food groups. a. dairy products. b. meat. c. vegetables and fruits. d. bread and cereals. C. Personal Care and Exercise 1. Good grooming habits. 2. Sufficient sleep and relaxation. a. fatigue increases chances for accidents. 3. Hobbies. a. source of relaxation, help to maintain good attitude. 4. Daily exercise. a. stimulates interest. b. relieves stress. D. Substance Abuse 1. Marijuana. a. affects nervous system. b. affects thinking, judgment and coordination. c. long-term effects unknown.	ILS Physical Development Explanation and Discussion Invite Specialist

2. LSD. a. affects chemical level in brain. b. produces bizarre mental reactions. 3. Barbiturates. a. one of most commonly abused drugs. b. slow responses. c. physically addicting. d. long-term use causes personality disorders. 4. Amphetamines. a. affect central nervous system. b. commonly abused. c. cause psychological dependence. d. dull emotions and impair ability to make decisions. 5. Alcohol. a. psychologically addicting.	
E. Meeting Various Trade Requirements 1. Recognize and prepare. a. natural maturation processes may play role. b. exercise will play role.	On-job-site visitations and consultation with occupational therapist.

6.0 Safety

INSTRUCTIONAL OUTCOMES: The student will be able to identify those hazards, acts and conditions which affect safety on the job and will be able to identify ways to avoid or correct them.

INTRODUCTION: A good worker is a safe worker; injury affects production, as well as the ability of a person to earn a living.

PRESENTATION

TEACHING OUTLINE	TEACHING METHODS AND AIDS
6.1 General Safety A. Average--over 14,000 employees killed each of past several years. 1. From 1960 to 1970 over 150,000 fatalities. 2. Cost, excluding property damage, $11.5 billion. 3. 50 million employee days lost in 1972. B. Accidents 1. An unplanned and unforeseen occurrence that interferes with or interrupts orderly progress of activity.	Explain, Discuss and Demonstrate Where Appropriate ILS General Safety

2. Should be analyzed to determine why and how happened. a. unsafe conditions; poor or defective equipment, poor housekeeping, inadequate lighting. b. unsafe acts; loose-fitting clothing; horseplay, removing guards. C. OSHA 1. Williams-Steiger Occupational Safety and Health Act, 1970. 2. Requires employers to provide safe conditions. 3. Requires employees to comply. 4. Covers about 60-million people; excludes federal employees.	
6.2 Personal Safety A. Safety Consciousness 1. Be aware of good safety practices. a. learn the rules. B. Safety Awareness 1. Put safety consciousness to use. a. obey the rules. C. Head Protection 1. 130,000 head injuries in 1976. 2. Wear clean, adjustable hard hat. D. Eye and Face Protection 1. 1,000 eye injuries each day. 2. Wear safety glasses, goggles, masks; shields if near harsh chemicals. 3. Wear safety glasses under shields.	ILS Occupational Safety-- Personal Safety

E. Hearing Protection
   1. Ear inserts lower high frequency.
   2. Ear muffs lower low frequency.

F. Lung Protection
   1. Mechanical filters protect against non-toxic dust.
   2. Chemical-cartridge types protect against low concentration of some vapors.
   3. Gas masks protect against organic vapers and toxic gases for limited time.
   4. Supplied-air respirators protect against high concentrations of gases and fumes.
   5. Self-contained breathing apparatus protects against high concentrations of gases, vapors, dusts, etc.
   6. Air line respirators protect against high concentrations of dusts, fumes, mists, and low concentrations of gases.
   7. Select proper one for each job.

G. Hand Protection
   1. Average of over 1,300 disabling hand and finger injuries each day in 1976.
   2. Gloves.
      a. asbestos protects against thermal burns, hot or cold.
      b. metal mesh protects against cuts and sharp objects.
      c. rubber protects against electrical and chemical burns.

d. neoprene and vinyl protect against chemicals.
e. leather protects against rough objects, heat and sparks.
f. fabric protects against dirt, abrasions, slivers.
g. coated fabrics protect against chemicals.

3. Creams also used.

H. Foot Protection

1. Over 200,000 disabling foot and toe injuries each year.
2. Wear leather steel-toed safety shoes or boots.

6.3 Fire Types and Prevention

ILS Fire Types and Prevention

A. Fire Types

1. "Class A" of wood, cloth, paper.
2. "Class B" of liquids and gases, paint, grease.
3. "Class C" of energized electrical equipment.
4. "Class D" of metals or metallic dusts.

B. Methods of Extinguishing

1. Absorb heat--add water.
2. Smother--add dry chemicals, foam.
3. Remove fuel--shut off supply.

C. Fighting Classes of Fires

1. Class A
   a. water to cool heat.

2. Class B. a. CO_2, powder to smother fire. 3. Class C. a. non-conducting agent. b. attempt to de-energize. 4. Class D. a. special extinguishing agent for types of metals.	
6.4 Hygiene Safety A. Exposure to Toxic Materials 1. Can create health hazards. 2. Internal exposure. a. breathing contaminants. b. swallowing contaminants. c. absorption through skin. 3. External exposure. a. contact with skin. b. can affect senses. B. Noise Pollution 1. Measured in decibels. 2. Can affect hearing over period of time. 3. Affects other parts of body. a. changes size of blood vessels, makes heart work faster. b. produces headaches. c. negatively affects nerves, decreases powers of judgment.	ILS Occupational Safety--Hygiene Safety

C. Airborne Contaminants

1. Dusts; particles generated mechanically.
   a. can affect skin, eyes, lungs.
2. Fumes; solid particles of condensation process.
   a. common fumes caused by oxidation of metal.
3. Mists; particles of liquids or liquids and solids.
4. Gases; low density, change to liquids or solids.
5. Vapors; gases normally in solid or liquid state at room temperature.
6. Contaminants may affect body in four ways.
   a. as irritants to lungs.
   b. as asphyxiants, prevent blood from normal transfer of oxygen.
   c. as anesthetics or narcotics, cause drowsiness and nausea.
   d. as systemic poisons, attack vital organs.

6.5 Hand Tool Safety

A. Hammers

1. Face should be 3/8" larger in diameter than object.
2. Strike object squarely and flatly.
3. Replace damaged handles before use.
4. Don't strike wood- or plastic-handled chisels.
5. Don't pound with cheek (side) of hammer.

ILS Occupational Safety--Hand Tools

6. Don't pound sharp objects with mallets

B. Chisels, Punches, Nail Sets
   1. Be sure tools are ground at proper angles.
   2. Remove mushroomed heads.
   3. Hold tools with tongs if being struck by another worker.

C. Screwdrivers
   1. Select correct size and tip style.
   2. Don't pound on screwdrivers.
   3. Don't put hands and fingers under work.
   4. Don't use screwdrivers to pry.
   5. Use appropriate wrench on square-shank screwdriver.
   6. Use magnetized screwdriver to start screws in awkward places.
   7. Use non-sparking screwdrivers if working near explosive hazard.
   8. Use insulated screwdrivers when working on electrical devices.
   9. Don't use screwdriver for electrical testing.

D. Wrenches
   1. Select correct type for job.
   2. Select correct size for snug fit.
   3. Don't use cheater bars.
   4. When using adjustable wrenches, always pull, always against fixed jaw.
   5. Be sure wrench fits squarely, not tilted.
   6. Don't pound with a wrench.

7. Use penetrating oil on "frozen" objects.

E. Pliers

1. Select correct size and type.
2. Don't use cheater.
3. Excessive heat will draw temper from metal.
4. Don't pound with pliers.
5. Cutting pliers.
   a. cut at right angle to wire.
   b. point open side down so cut end will not fly out.
6. Use pliers with high dielectric insulation when working on electrical devices.
7. Keep jaws clean.

F. Vises

1. Work as close to vise as possible.
2. Clamp objects in middle of jaws.
3. Don't use cheater bar.
4. Use adequate-sized vise.
5. Support far end(s) of long work to avoid putting excess strain on vise.

G. Clamping Tools

1. Select correct size and type.
2. Keep moving parts clean and lightly-oiled.
3. Don't over-tighten.
4. Don't use cheater.
5. Don't use for hoisting materials.

H. Saws

1. Select correct size and type.
2. Maintain sharpness.
3. Check material before sawing.
4. Use sawhorse or bench, not knee, when sawing.
5. Make sure handle is clean and tight.
6. Be aware of hand, finger and leg position before sawing.
7. Hacksaw teeth should point away from handle to saw on push stroke.
8. Wear gloves when sawing metal.

I. Snips, Shears

1. Select correct size and type.
2. Keep blades sharp.
3. Do not cut wire.
4. Use only hand pressure.
5. Wear gloves.

J. Files, Rasps

1. Select proper size and type.
2. Don't use wood file or rasp on metal.
3. Cut on forward stroke.
4. Keep teeth clean.
5. Use proper sized handles.
6. Don't use to pry.

6.6 Power Tools

A. Circular Saws

1. Operate only with fixed guard on upper half of blade and flexible guard on lower half; don't tamper with guards.

ILS Occupational Safety--Power Tools

2. Blade should clear material by maximum 1/8".
3. Operate by not forcing; forward motion only.
4. Check material for nails, grit, etc.; support material so it doesn't bind.
5. Allow blade to come to full speed before cutting; prevents kickback.
6. Make sure lower guard has returned before setting down.
7. Clean sawdust from lower guard often.

B. Sabre Saws
1. Select proper blade for material.
2. Feed blade slowly.
3. Hold saw base against material.

C. Pneumatic Tools
1. Secure all hoses.
2. Clean with compressed air only if less than 30 PSI with guard.
3. Hoses over 1/2" diameter must have safety valve at source.
4. Hose couplings must have safety connection.
5. Nailers should have device to prevent ejecting when not in contact with work.
6. Point tools toward floor when carrying.
7. Shut down, turn off air supply, bleed line.
8. Wear safety equipment, goggles, shields, etc.

D. Hydraulic Power Tools

1. Fluid used must be fire-resistant and approved by U.S. Bureau of Mines.
2. Don't exceed manufacturer's pressure recommendations.
3. Don't touch stream of fluid from leak.

E. Compressors

1. Storage tanks must be approved by American Society of Mechanical Engineers.
2. Drain condensed water daily.
3. Tanks must have safety relief valve.
4. Pressure gauge must be maintained accurately.

F. Powder-Actuated Tools.

1. Test before loading each day.
2. Load just before using.
3. Wear hearing, eye protection.
4. Don't point at anyone; keep hands away from barrel end.
5. Leave protective guards in place.
6. Must have safety device to prevent accidental firing, and to prevent firing if tilted.
7. Don't operate near combustion hazard.
8. Should only be operated by trained and qualified personnel.
9. Return tool to case after use.
10. Don't drive fasteners into extremely hard or brittle materials.

7.0 First Aid

INSTRUCTIONAL OUTCOMES: The student will successfully complete an eight-hour multi-media first aid class, taught by a qualified instructor, and will obtain a First Aid Card.

INTRODUCTION: Persons employed in any occupation, especially those occupations which deal with power and hand tools, encounter situations when first aid may be necessary to prevent an injury from becoming more serious. A first aid course, successfully completed, prepares individuals to cope with many of those situations.

PRESENTATION

TEACHING OUTLINE	TEACHING METHODS AND AIDS
7.1 First Aid A. Eight-hour multi-media course, or equivalent, offered by: 1. Red Cross 2. Medical Services, Inc. 3. Police Department 4. Fire Department 5. Other service and health organizations.	Administer course

8.0 Blueprint Reading

INSTRUCTIONAL OUTCOMES: The student will be able to identify and use the concepts of working drawings and their components: scaling and dimensioning, sketching, orthographic, pictorial and isometric projections, as well as construction symbols commonly found in blueprints.

INTRODUCTION: A skilled worker must understand the language of blueprints to advance in any trade where prints are used.

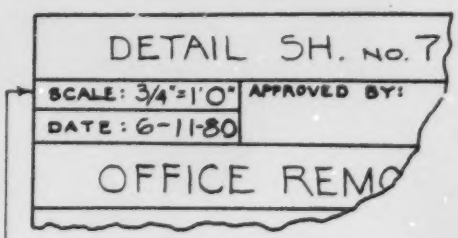
PRESENTATION

TEACHING OUTLINE	TEACHING METHODS AND AIDS

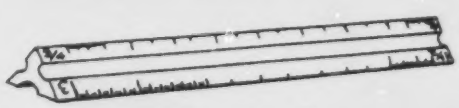
8.1 Scaling and Dimensioning

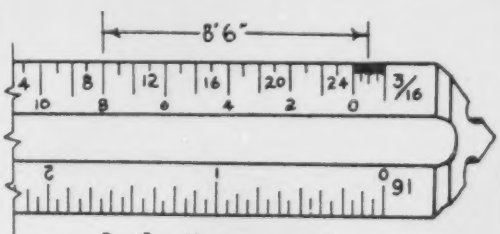
A. Scale

1. The ratio of drawing dimensions to object dimensions.
2. Always indicated on drawing.
3. Vary, depending on size of paper and detail to be shown.
4. Measured by architect's scale, engineer's scale, draftperson's scale.
5. Technique of measurement: architect's scale is placed on drawing, read in marked increments.



Scale as Shown

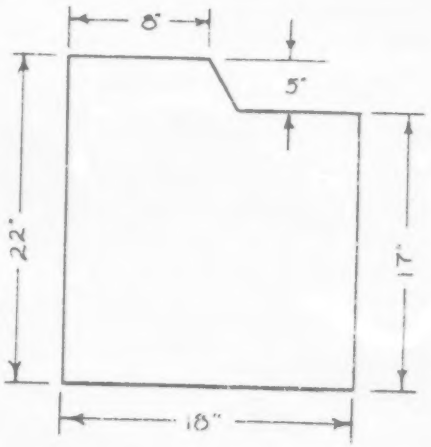

Architect's Scale



Scale Measurement

B. Dimensions

1. Are size descriptions for drawn objects.
2. Located on working drawings by:
   a. dimension lines--indicate distance between two points (usually between two extension lines); contain dots or arrows at ends.
   b. extension lines--mark the beginning and end of distance.
3. Placed in orderly fashion on drawing.



Dimensions

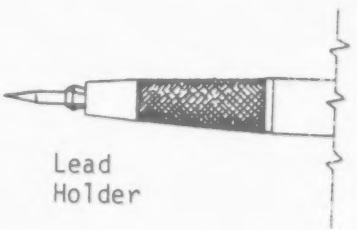
8.2 Sketching

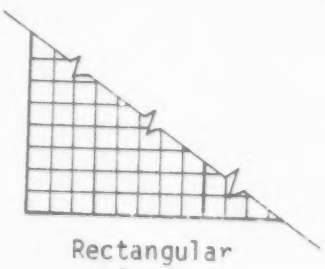
A. Uses

1. For conveying rough ideas or organizing ideas.
2. For details, developed from existing drawing.

B. Materials

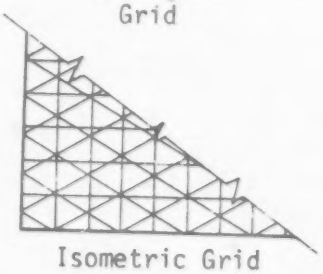
1. Pencil, soft lead.
2. Eraser, gum.
3. Paper, coordinate.
   a. rectangular grid
   b. isometric grid


Lead Holder


Rectangular Grid

C. Size, Proportions

1. Generally not drawn to scale, but should remain proportionately accurate.


Isometric Grid

D. Procedures
   1. Determine overall size of object.
   2. Create short lines by one firm, quick stroke.
      a. go through motion of stroke with pencil removed from paper.
      b. pencil point on paper entire time.

E. Basic Forms
   1. Squares, rectangles, triangles, circles.
   2. Layout crosses (intersecting lines) to provide reference points for drawing.
   3. Circles and arcs sketched with little finger of drawing hand as pivot; move paper, not hand.

8.3 Drawing Types and Views

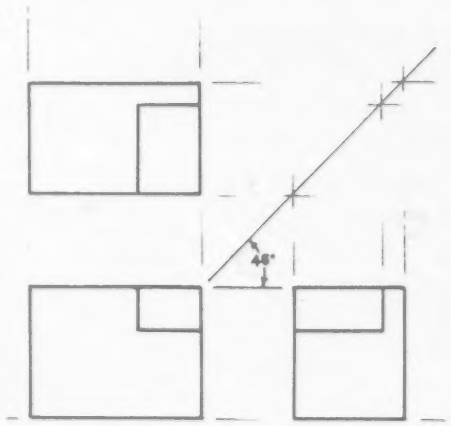
A. Orthographic Projection
   1. Called orthograpic drawings or "true" drawings, also "three-view" or "multiview."
   2. Almost universally used in architect and engineer drawings.
   3. Drawn to scale.
   4. Each view shows one face or side of object as seen from square view.
   5. Possible to indicate true size, shape and location of all object parts, and dimension clearly.

Explain and Discuss;
All References made to:

ILS Scaling and Dimensioning

ILS Sketching

ILS Types of Drawings and Views

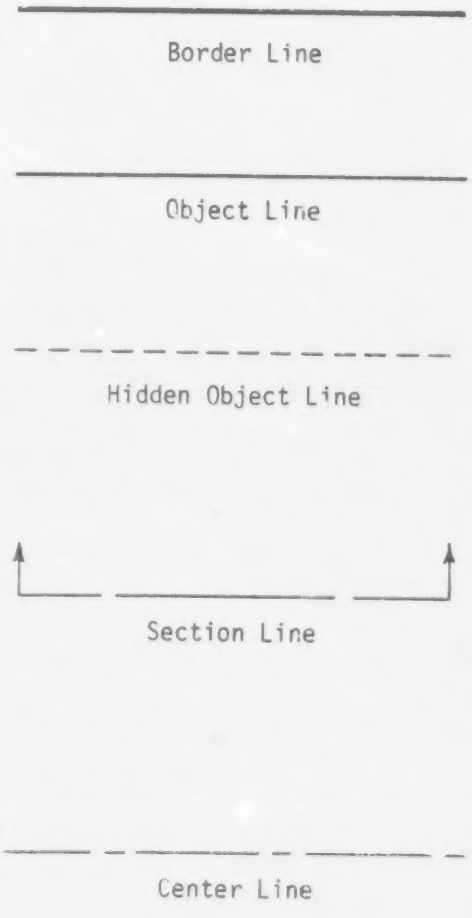


Orthographic Drawing

6. Each view is 90^{0} rotation of other view.
7. All related views must be studied together to visualize object shape.

B. Types of Lines

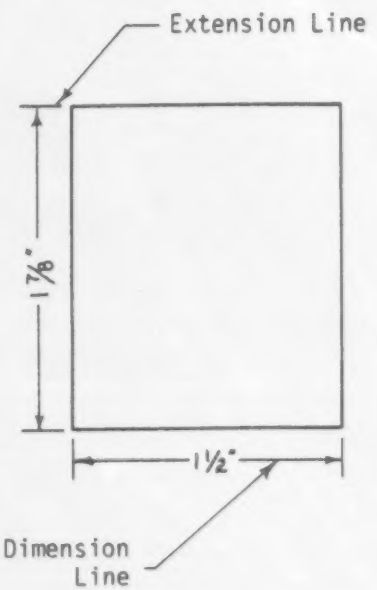
1. Border Line.
   a. a thick, solid black line (blue).
   b. shows geographical or space borders.
2. Visible object line.
   a. a thinner solid black line (blue).
   b. shows visible edges of object.
3. Hidden object line.
   a. a line of equidistant and equal length dashes.
   b. shows edges of important elements hidden from view.
4. Section line.
   a. a thick, broken line with arrows turned at 90^{0} angle.
   b. delineates sections of object represented.
5. Center line.
   a. a thin line of alternately long and short dashes.
   b. shows centers of objects (doorways, e.g.) and relationship with given dimensions.



6. Long break line.
   a. a thin solid line, straight, with occasional zig-zags.
   b. indicates a break in object.
7. Extension line.
   a. a short thin line, drawn perpendicular to dimension line.
   b. shows beginning and ending point of measurement; lines are extensions of object or part.
8. Dimension line.
   a. a long thin line, with dots or arrows on each end, broken in middle for numbers.
   b. touch extension lines and give measurement from one extension line to another.

C. Pictorial Drawing
   1. Shows more than one face of object.
   2. Advantage: easier for lay person to understand.
   3. Disadvantage: distorted object lines and angles.
   4. Useful to give "completed" look renderings.

Long Break Line

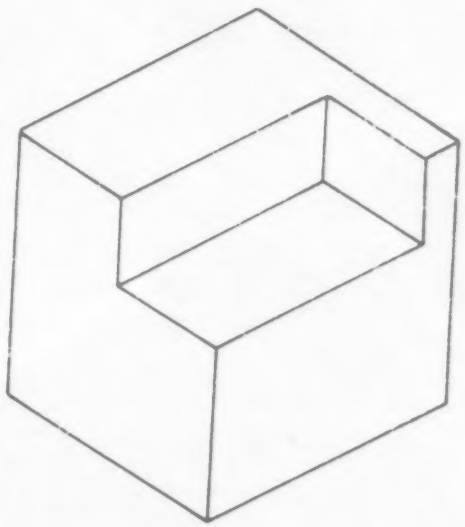


D. Axonometric Drawing

1. A type of pictorial drawing.
2. Three principle axes used.
3. Can represent any object by changing viewpoint.
4. Isometric position is principle one used.

E. Isometric Drawings

1. Viewed from exact position in which three of sides are equally foreshortened.
2. Three axes: one axis vertical and other two at 30^{o} from horizontal base.
3. Will appear in true proportion.
4. Will not appear in true scale lengths.



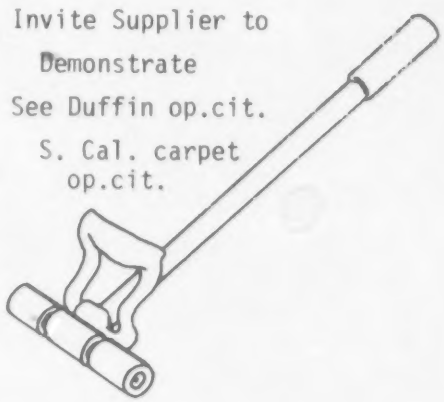
Isometric Drawing

9.0 Trade Tools/Floor Covering

INSTRUCTIONAL OUTCOMES: The student will be able to identify, select and explain the use of commonly-used trade tools, as well as demonstrate basic proficiency in their use.

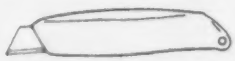
INTRODUCTION: The skilled worker, to master the trade and accomplish the work tasks efficiently and effectively, needs an understanding of the tools and their proper use.

PRESENTATION

TEACHING OUTLINE	TEACHING METHODS AND AIDS
9.1 General Tools A. Rollers 1. Generally three types, a light hand-held 2½" roller, a heavier, several-pound, three-roll roller held in both hands, and a hand-pushed 75 lb. roller. 2. Used for pressing vinyl and laminates into mastics for secure fit; used according to materials and floor space to be pressed. 3. Used by rolling across surface to be attached, rolled in 11 directions.	Explain and Discuss Invite Supplier to Demonstrate See Duffin op.cit. S. Cal. carpet op.cit.  Flooring Roller

B. Knives

1. Utility and linoleum knives.
2. Used to cut carpet and padding, vinyl and soft tiles.
3. Used in conjunction with steel straight edge, running knife along edge, to ensure straight cut.



Utility Knife

Linoleum Knife

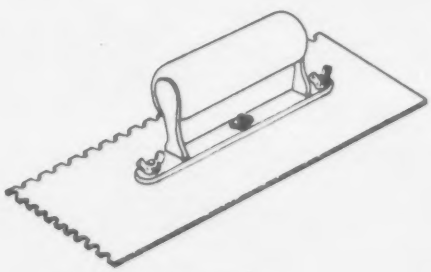
C. Scribes

1. Awls or other pointed instruments.
2. Used to mark surfaces for layout, cutting or any task that requires a mark on surface or subsurface.
3. Usually used in conjunction with a straight edge, scratching surface along edge to ensure straight mark.

Awl

D. Trowels

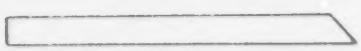
1. Serrated-edge trowels.
2. Used to spread mastic or adhesive to subfloor.
3. Held in hand at 45^{o} angle to surface, spreading mixture in serpentine motion



Serrated Trowel

E. Straight Edge

1. Generally a six-foot steel tool.
2. Used as a guide for marking or cutting subfloors or materials; competent workers usually use one edge (true edge) for marking and the other edge for cutting.
3. Place flat on surface, align with marks on floor or material, and cut or mark.



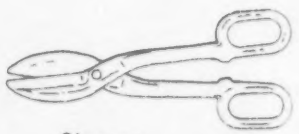
F. Hammers

1. Many types, but generally preferred is a 22-oz. hammer with fiberglass handle to absorb shock.
2. Used to attach tack strips to subfloor for holding carpets; miscellaneous uses.

Hammer

G. Snips ans Shears

1. Many types; personal taste determine which one(s) the worker uses.
2. Snips used to cut tack strips to length, to trim certain tiles; shears used to cut soft materials.
3. Used like scissors.



Shears

H. Chalk Line

1. Two types--a self-chalking line and line on a spool that must be hand-chalked.
2. Used for marking lines on surfaces.
3. One end of chalk line is attached to a point on surface, chalk line is lined up over another point, forming line to be marked, second end of the chalk line is secured; chalk line is grasped by fingers near its mid-point, raised and released, snapping back onto surface, leaving a mark.

Self Chalking Line

I. Staple Gun (staple hammer)

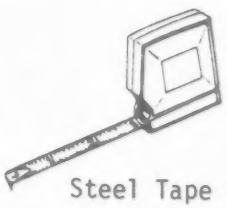
1. Many styles and sizes, generally preferred is one which is held in hand like hammer.
2. Used for attaching padding to subfloor

Staple Hammer

3. Operates on principle of any manual stapler; hold in hand and strike face onto surface to be attached (like hammer) impact forces staple into surface.

J. Steel Tape Measure

1. Many makes and sizes, generally preferred is a heavy-duty model with tape-lock capabilities.
2. Used to measure surfaces and materials
3. Used by attaching one end to specified point; laying tape flat on surface, and reading scale on tape.



Steel Tape

K. Stair Tool

1. A steel instrument with a handle and a dulled broad chisel-like head of 2½" or 3".
2. Used to attach carpet to tack strips and ensure good crease on wall edges and corners.
3. Used by rubbing, with firmness over carpet surface on top of tack strip, with head facing toward outer wall.

Stair Tool

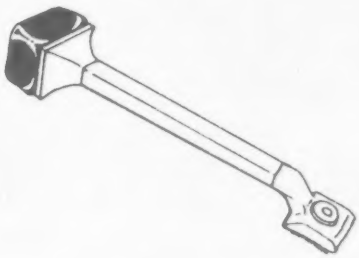
L. Wall Trimmer

1. A side clipper with adjustable blades.
2. Used to cut carpet at wall edges and corners.
3. Wall trimmer is a hand-held device in which the trimmer blades move as the arm pushes trimmer across the floor surface. Blades are adjusted prior to cutting. May be necessary to repeat forward motion to ensure clean cut.

Wall Trimmer

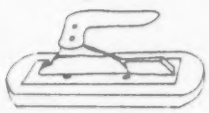
M. Knee Kicker

1. Spring-loaded device with adjustable resistance and adjustable spikes (teeth).
2. Used to stretch carpet taut across surface prior to attaching and trimming.
3. Used by adjusting resistance and teeth to desired levels; placed teeth down on carpet surface near edge (3" to 4") strike padded butt with knee; should always be used on opposing walls, north-south, then east-west.



N. Seaming Iron

1. One standard size.
2. Used to attach two pieces of carpeting together.
3. Heat to temperature, place on seaming tape centered beneath carpets, advance forward slowly with hand or knee; used in conjunction with seaming board.



O. Seaming Board

1. Commercially available, although many workers construct their own; a piece of wood with formica or manufactured material bottom for smoothness.
2. Used to compress carpet bottom to heated tape to ensure long-lasting fit.
3. Used by pushing board behind seaming iron; worker's knee rests on board to apply pressure.

10.0 Materials/Floor Covering

INSTRUCTIONAL OUTCOMES: The student will be able to identify common materials--coverings and methods of adhesion and identify the process by which they're used.

INTRODUCTION: The skilled worker readily selects proper materials and efficiently uses them.

PRESENTATION

TEACHING OUTLINE	TEACHING METHODS AND AIDS
10.1 General Materials A. Adhesives 1. Use manufacturer's recommended adhesives. 2. Vast majority, floor must be clean, dry, free from paint, efflorescence or concrete curing compounds. 3. Pour on floor, spread entire area with 1/16" X 1/16" X 1/16" notch trowel. B. Tack Strips 1. Two basic types. a. pre-nailed wood tack strip.	Explain and Discuss Invite Supplier to Demonstrate

b. used on wood underlayment that is wood. (i.e. plywood, partical board, etc.)

2. Pre-nailed concrete tack strip.
   a. used on concrete floors.
3. Both are installed 3/8" from wall with pins pointing toward wall.

C. Plastic Laminates
1. Three Basic Grades.
   a. general purpose grade.
      (1) used for both horizontal and vertical interior applications.
   b. forming grade.
      (1) capable of being bent to small radius (e.g. coved backsplash construction or rolled front edge of counter top).
      (2) eliminates unsightly seams.
   c. vertical grade.
      (1) engineered for vertical surfaces (e.g. kitchen and vanity cabinets subject to less wear than horizontal work surfaces)

D. Floor Coverings
1. Vinyl
   a. one basic type, Hydrocord Backing.
   b. backing resists moisture associated problems, allowing installation on all grade levels.
   c. can be used in any room, but usually in room such as kitchen, utility room, and bathroom, where moisture exists.

2. Tiles.
   a. two basic types.
      (1) vinyl-asbestos tile (V.A.T.).
         (a) composition of vinyl resins, plasticizers, asbestos fibers, mineral fillers, and color pigments calendered to given thickness, cut in tile sizes, usually 12" X 12" or 9" X 9".
         (b) thickness available, 1/8"--recommended for commercial application, 3/32"--recommended for light-commercial application.
      (2) vinyl--composition tile; tile composed of vinyl resins, plasticizers, fillers, and color pigments, manufactured without use of asbestos fibers.
         (a) thickness available; same as V.A.T., also available in 1/16"; recommended for residential use only.
3. Carpets.
   a. many different types of carpet available.
      (1) nylon.
         (a) multiple of types available. Consider cost factor.
         (b) average home changes carpet every seven to eight years.

(c) compare nylon to wool; nylon cost above one quarter cost of wool.

(d) most nylon will wear and look good for an average eight to ten years.

(2) wool carpet.

(a) long-lasting and wearing carpet; no average life has been determined.

(b) wool carpets 15 years old still looked new after cleaning.

E. Padding

1. Rubber.
   a. several weights.
   b. can be used in any area.
   c. cost factor considered.
   d. soft feel under foot.
   e. main problem, it dries out and starts to deteriorate, normally last the life of one carpet.
2. Hair.
   a. can be used anywhere carpet is to be laid.
   b. recommended for floors with radiant heat.
   c. does not feel like any pad under foot; very hard.
3. Clay Based.
   a. same as rubber except it does not dry out and deteriorate like rubber.

4. Foam pad.
   a. comes in many different thicknesses.
   b. economical pad.
   c. normally used in rentals or bedrooms.
   d. very soft feel under foot.
5. Rebond pad.
   a. chips of urethane rebonded together with special adhesives.
   b. best value on market today.
   c. used in all carpet area; 85% of all carpet jobs today use rebond pad.
   d. soft feel under foot, normal life of two carpets.

11.0 Subsurface Preparation

INSTRUCTIONAL OUTCOMES: The student will identify the steps necessary to prepare subsurfaces for receiving covering.

INTRODUCTION: In order to produce a professional, long-lasting appearance, subsurface preparation is essential.

PRESENTATION

TEACHING OUTLINE	TEACHING METHODS AND AIDS
11.1 Subsurfaces A. New 1. Plywood is best; watch for knot holes which are loose and could pop out after floor is laid. 2. Chipboard is commonly used due to cost. B. Existing 1. Chipboard--problems. a. swelling from moisture. b. deteriorated; dried out.	Explain and Discuss Jobsite Visitation

2. Correction.
   a. cut out bad spots and patch with another piece of chipboard (or if small enough area, fill with fix-all).
      (1) in area to be filled, pour fix-all powder on floor in mound; make pocket in middle of mound and mix in water or latex milk; fill holes or crack with mixture, spreading smooth with flat-edge trowel; let stand until hard.
3. Concrete problems.
   a. surface is rough or has cracks.
4. Correction.
   a. fix-all.
   b. instead of water mixer with fix-all, use latex milk; makes fix-all set up harder, more reliable.
5. Existing coverings.
   a. sheet vinyl.
      (1) vast majority of vinyls on market are cushion vinyl, a pattern printed on piece of paper about thickness of an onion skin, has a wearlayer applied on top of that.
      (2) to replace this type, must be torn up comepletely, scraped smooth, and prepared with tack strips.
   b. countertops.
      (1) all decks can be installed over existing.

(2) check if existing formica is loose; reglue or pull off existing.

(3) if large chips on corner, is best to remove existing.

c. carpet.

(1) all carpets stretched in wall to wall must be removed before new floor can be installed.

12.0 Floorlaying Processes

INSTRUCTIONAL OUTCOMES: The student will be able to identify and describe the steps involved in the various tasks of floorlaying carpet, vinyl and tile.

INTRODUCTION: It is important that the skilled worker know the order in which a job is completed, as well as the individual steps of each task. Work is performed smoothly and more efficiently. Tasks are finished quicker with a greater sense of accomplishment and less frustration.

PRESENTATION

TEACHING OUTLINE	TEACHING METHODS AND AIDS
12.1 General Processes 12.1.1 Carpet Processes A. Level and Clean Surface Area 1. Sanding or chipping. 2. Sweeping. B. Measure Area to Determine Coverage Required. 1. Metal Tape. C. Attach Tack Strips. 1. Layout around wall with pins up and facing out. a. 3/8" to 1/2" from walls.	Explain and Discuss Jobsite Visitation

2. Cut to length with snips.
3. Attach with hammer.

D. Attach Pad
   1. Measure pad with steel tape and straight edge.
   2. Trim to size and fit with utility knife.
   3. Fit into space.
   4. Attach seams and edges with staple gun.
   5. Trim excess along inside edge of tack strip.

E. Prepare Carpet.
   1. Mark carpet to be 3" longer than length and width of area.
      a. use pencil and straight edge.
   2. Cut carpet to size.
      a. use straight edge and knife.
   3. Lay carpet loosely in place.
   4. Seam any fills.
      a. trim edges to square.
      b. insure nap is symmetrical.
      c. cut seaming tape.
      d. center below two pieces.
      e. heat with seaming iron.
      f. compress with seaming board.
      g. allow wax to cool.

F. Attach Carpet.
   1. Adjust teeth of knee kicker.
   2. Place near tack strips.
   3. Operate knee kicker.
   4. Run stair tool over tack strips firmly

G. Trim
   1. Adjust wall trimmer.
   2. Operate wall trimmer.
   3. Tamp edges behind tack strips with stair tool.

H. Clean Up

12.1.2 Vinyl Processes

A. Level and Clean Surface Area
   1. Sand, chip, fill.
   2. Remove old vinyl or carpet.

B. Measure Area to be Covered
   1. Use steel tape.

D. Prepare Vinyl
   1. Measure and mark vinyl to size; square to door.
      a. use straightedge and pencil.
   2. Cut vinyl to within 1/8" of wallbase measurement.
      a. use straight edge and linoleum knife.
   3. Drop into place.
   4. Set 75 lb. roller on vinyl.

D. Attach Vinyl
   1. Spread mastic under one-half of vinyl to wall.
      a. the one-half opposite roller.
      b. use serrated trowel.
      c. roll vinyl back onto mastic area.

d. with roller, roll out air bubbles almost up to mastic line.

2. Repeat process for other half.

3. Inspect for air bubbles.

E. Clean Up

12.1.3 Vinyl/Asbestos Processes

A. Level and Clean Surface

1. Sanding and chipping.

2. Remove old surface.

B. Layout

1. Measure room.

2. Mark center line.

3. Calculate number of tiles.

4. Divide room in half.

a. use chalk (line) and straightedge.

b. at right angle with wall opposite door.

C. Attach Tiles

1. Spread adhesive evenly over floor area.

a. work toward door.

b. use linoleum trowel.

c. allow to dry to the touch.

2. Lay tiles.

a. first tile at door edge, touching the left of center line.

(1) gently, don't push or press any tile.

b. second tile square and flush to first, right of center line.

c. third to left of first.
d. fourth to right of second.
e. fifth above first.
f. sixth above second.
g. seventh above third.
h. eighth above fourth.
i. and so on to backwall.

3. Measure odd sizes around edges.
4. Cut tiles to size with tile cutter.
5. Install.
6. Inspect.

D. Clean Up

SUGGESTED READING

1. Duffin, D. J.
Essentials of Modern Carpet Installation

Van Nostrand Reinhold Co., 1962

2. Southern California Carpet, Linoleum and Soft Tile Crafts Joint Apprenticeship Committee
Carpet Training Manual

Southern California Carpet, Linoleum and Soft Tile Crafts Joint Apprenticeship Committee

13.0 Basic Floor Covering Installation Concepts

INSTRUCTIONAL OUTCOMES: Student will demonstrate and execute basic trade skills by completing a project to the satisfaction of the instructor.

INTRODUCTION: This instructional unit provides students an opportunity to practice techniques followed in the Pacific Northwest; appropriate techniques will have been learned in previous topics in this guide.

PRESENTATION

TEACHING OUTLINE	TEACHING METHODS AND AIDS
13.1 Carpet Installation in Two Pieces on Mock-up A. Layout 1. Measure floor area. 2. Determine linear dimensions and area dimensions. B. Attach Tack Strips 1. Layout around edge. 2. Trim to length. 3. Attach to floor.	Explain and Discuss Administer Project Sheet

C. Attach Pad
   1. Cut to size in two pieces.
   2. Layout in mock-up work area.
   3. Attach to floor.
   4. Trim to inner tack strip edges.

D. Carpet Installation
   1. Measure and mark seam edge.
   2. Cut pieces to size.
   3. Lay in mock-up.

E. Seaming
   1. Heat seaming iron.
   2. Place seaming tape beneath pieces.
   3. Align and iron using seaming iron and seaming board.

F. Attach Carpet
   1. Use knee kicker to stretch uniformly across surface.
   2. Use stair tool to attach carpet to tack strips.
   3. Repeat steps 1 and 2 on opposite walls.

G. Trim Carpet Edge and Finish
   1. Use carpet knife to cut close to base of wall.
   2. Trim edges with wall trimmer.
   3. Repeat 1 and 2 for each wall.

H. Tuck Edge of Carpet with Stair Tool

I. Cut, Trim and Tuck Corners

J. Remove Trimmings and Clean Area.

13.2 Vinyl Installation

A. Layout

1. Measure floor area.

B. Vinyl Placement

1. Measure and mark to size.
2. Cut to size with straightedge and linoleum knive.
3. Lay vinyl in place.
4. Roll 1/2 of sheet back (towards door).

C. Attaching Vinyl

1. Spread mastic on exposed portion.
2. Replace vinyl back over mastic.
3. Roll out air bubbles with roller.
4. Repeat steps B-4 through C-3 on remaining half of vinyl.

D. Trimming

1. Inspect edges for any required trimming.

13.3 Vinyl/Asbestos Tile on Mock-up

A. Layout

1. Measure room area.
2. Mark center line with chalk line.
3. Determine the number of tiles required.
4. Divide room in half at right angles to wall opposite door using chalk line and straightedge.
5. Mark line with tape.

B. Attaching Tile

1. Spread mastic with linoleum trowel.
2. Allow to dry to touch.
3. Lay first tile at door edge left of center line.
4. Lay second tile right of center line, flush against first.
5. Lay third tile to left of first.
6. Lay fourth tile to right of second.
7. Lay fifth tile immediately above first
8. Lay sixth tile immediately above second.
9. Lay seventh tile immediately above third.
10. Lay eighth tile immediately above fourth.
11. Leave spaces at the side until full-tile laying is completed. (Four tiles across are needed to support worker's weight.)
12. Measure remaining spaces and cut tiles to size with tile cutter. (Irregular shapes may be necessary to make hot cuts, using blow torch.)
13. Ensure that all lines (joints) are straight.
14. Clean up area.

FLOORLAYING PROJECT SHEET

1. Installing two pieces of carpet

The student will lay two pieces of carpet and join them with a seam, over two pieces of padding, using the appropriate tools correctly and safely in the commonly-approved installation procedures.

REQUIREMENTS

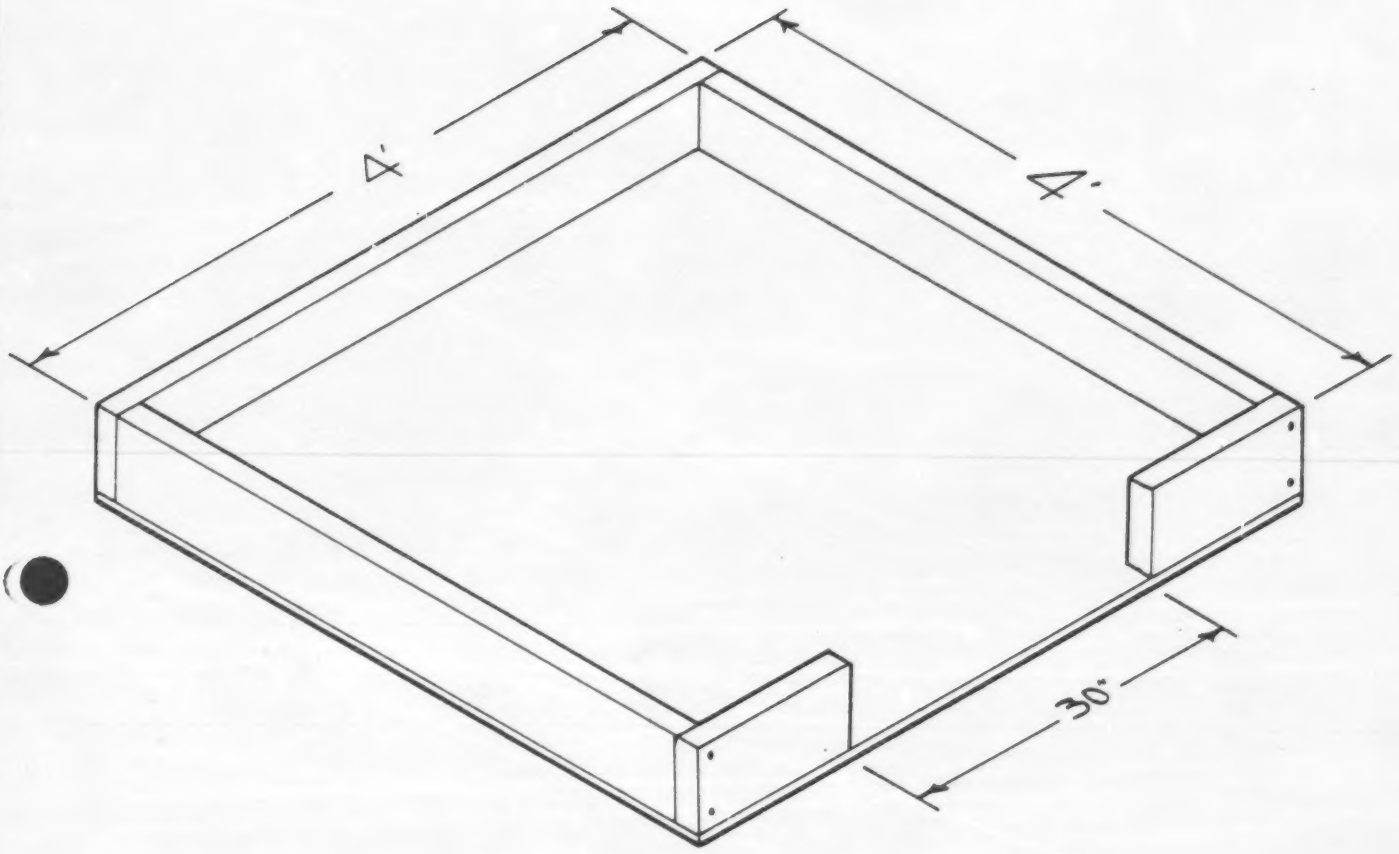
A plywood mock-up of a room, at least 4' x 4', with built up edges and a door opening.

TOOLS

metal tape measure
pencil
snips
22 oz. hammer (preferably with fiberglass handle)
straight edge
utility knife
staple gun
seaming iron
seaming board
scissors or shears
knee kicker
stair tool
wall trimmer
carpet knife

MATERIALS

carpet, approximately 4½' x 4½'
padding, same size
seaming tape
tack strips



QTY.	DESCRIPTION	PART NUMBER
1	4' X 4' X 5/8" PLYWOOD	
2	2"X 6" X 8'	
50	ANNULAR RING NAILS	
8	#16 COMMON NAILS	

STEPS TO COMPLETION

1. Inspect floor condition. If flat, sweep clean. If there are any bumps that might affect the finished appearance take appropriate measures.

2. Measure room with metal tape.

3. Lay out tack strips around room edge with the pins facing up and toward wall.

4. Using snips, cut tack strips to size, so that they lay end to end around perimeter of room.

5. Leave space the width of fingers between base of wall and tack strip, attach with hammer.

6. Measure and mark pad; with straight edge and utility knife cut it into two pieces that will cover the area of the mock-up. (One piece should be at least twice as large as the second piece; the smaller piece will be called the fill.)

7. Lay two pieces of pad loosely into work space so they reach or overlap tack strips.

8. With staple gun attach pad around inside perimeter of tack strips; also attach around and along both sides of the seam.

9. With sharp utility knife cut along inside edge of tack strip. Throw scraps into center of room.

10. Clear scraps and plug seaming iron on its base.

11. With straight edge and pencil measure and mark carpet so it is about 3" longer in leangth and width than the working area.

12. Measure and mark seam edge between main carpet and fill; (ensure that the nap will run in the same way on both pieces when laid--leaning toward door opening.

13. Lay straight edge across marks and cut outside edges and seam edges.

14. Carry rolled carpet into room area and lay out loosely; attempt to fit two walls, with overlap on remaining walls.

15. Lay fill peiece alongside main carpet so that seam edges are together and nap leans in same direction; place fill within easy reach.

16. With scissors cut seaming tape length of seam and lay it under main carpet with black center line just showing; lay fill piece in place.

17. Place seaming board next to point where work begins and leave iron base at far end of seam.

18. Pull edges of two carpet pieces apart and place iron at start of seaming tape; let sit until wax melts.

19. Push iron along seaming tape slowly; if it drags, there isn't enough heat.

20. As iron travels, bring carpet pieces together behind iron down on melted wax.

21. Continue, following along the seam kneeling on seaming board.

22. If iron won't be used again, replace on base and unplug.

23. Wait 15 to 20 minutes for wax to cool and bond.

24. Adjust teeth of knee kicker. Place near right corner facing door, about 3" in front of tack strip.

25. Push with knee so that carpet moves onto pins. Hold stair tool in one hand; as you push carpet with knee kicker, press down in front of tack strip until you feel it catch on pins. Firmly run stair tool along strip to attach carpet.

26. Repeat last step, working from right to left along first edge.

27. Carry knee kicker to opposite wall of work area and place about 3" inside tack strip.

28. Working from right to left, give knee kicker a heavy strike with knee while pressing carpet down in front of knee kicker, run stair tool along carpet over strip to ensure carpet is attached to pins.

29. Repeat to left corner, then repeat same procedure on remaining sides.

30. Examine carpet to see that it is flat, without wrinkles, and is securely attached.

31. Adjust wall trimmer to correct height for carpet.

32. With carpet knife slit opening at midpoint of one edge; cut to base of wall.

33. Push trimmer into slit until it sits flat and square with wall.

34. Push trimmer along base of wall. Repeat steps 32 and 33 until all walls (not corners) are neatly trimmed.

35. With stair tool, push down wall edge of carpet so it lies flat.

36. At corners, bend untrimmed carpet toward center of room; with carpet knife, cut both edges to square. (If necessary, draw a guide line.)

37. Inspect finish.

38. Clean up.

2. Installing vinyl

The student will lay, cut and attach sheet vinyl to a floor area, using appropriate tools, correctly and safely, in the commonly-approved installation practices.

REQUIREMENTS

Same mock-up

TOOLS

metal tape measure
pencil
linoleum knife
75-lb. roller
straight edge
serrated trowel

MATERIALS

mastic (Henry's 356)
patterned vinyl, approximately 5' x 5'

STEPS TO COMPLETION

1. Inspect and prepare floor area. (Take up old vinyl or carpet, strips and staples. Fill large cracks and knot holes. Smooth surface.)
2. Measure floor area with metal tape.
3. Measure and mark vinyl to size. Square pattern to door.
4. With straight edge and linoleum knife, cut drop to size (should fit to within 1/8" of base of wall).
5. Lay vinyl in place and set roller on half nearest door.
6. Pull back other half of drop, with serrated trowel, spackle mastic on the exposed floor area.
7. Spread mastic firmly and evenly up to walls.
8. Roll vinyl back on top of mastic.
9. Push roller back and forth, side to side, to press out air bubbles almost to glue line.
10. Leave roller on half that has been attached, pull back other half past glue line.
11. Repeat application of mastic.
12. Flop vinyl over onto mastic and roll it flat from center glue line to edges.
13. Inspect for air bubbles.
14. Inspect edges to determine if trimming is required.
15. Clean up.

3. Laying vinyl/asbestos tiles

The student will lay vinyl/asbestos tiles on a floor area, showing appropriate use of tools and accepted installation procedures.

REQUIREMENTS

Same mock-up

TOOLS

metal tape measure
serrated linoleum trowel
straight edge
chalkline
tile cutter

MATERIALS

vinyl/asbestos tiles
adhesive tape
asphalt cutback adhesive

STEPS TO COMPLETION

1. Inspect, sweep and prepare floor area.
2. Measure room area. Check measurements at several points. Mark center line.
3. Determine how many tiles are required.
4. With straight edge and chalkline, divide room in half at right angles to wall opposite door opening. Mark the line with tape.
5. With linoleum trowel, spread adhesive evenly over floor area, working backward to door opening.
6. Allow adhesive to dry to touch. (Depending on temperature and humidity, may take from 30 minutes to 90 minutes.)
7. Place tiles next to door opening.
8. While kneeling, lay first tile gently (do not push or press) at the door edge, touching left of center line.
9. Bring second tile square to first and to right of center line, lay gently.
10. Lay third tile to left of first.
11. Lay fourth tile to right of second.
12. Lay fifth tile immediately above first.
13. Lay sixth tile immediately above second.
14. Lay seventh tile immediately above third.
15. Lay eighth tile immediately above fourth.
16. Leave spaces at the side until full-tile laying is completed. (Four tiles across are needed to support worker's weight.)
17. Measure remaining spaces and cut tiles to size with tile cutter. (Irregular shapes may be necessary to make hot cuts, using blow torch.)
18. Ensure that all lines (joints) are straight.
19. Clean up.

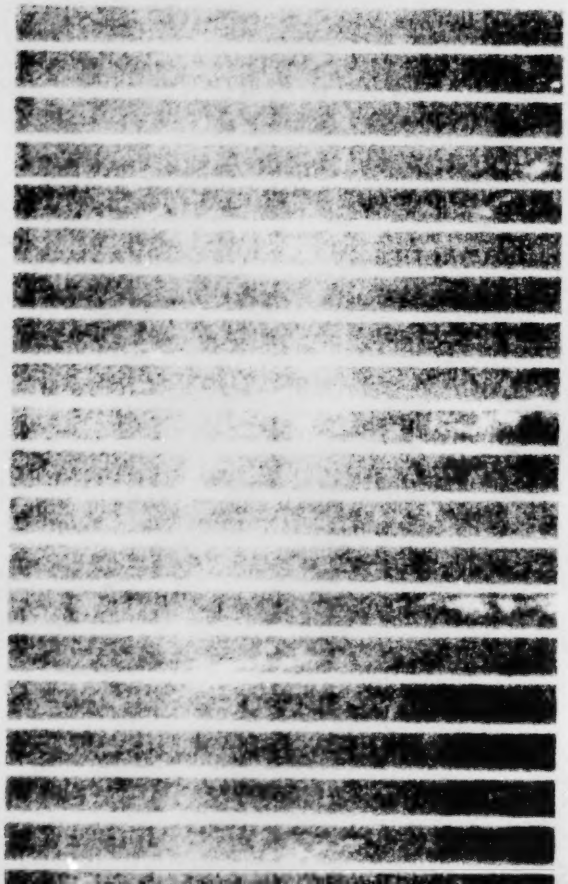
APPENDIX

OCCUPATIONAL ANALYSIS

(10)

Task Analysis

Floor Layer



INSTRUCTIONAL LEARNING SYSTEMS

Task Analysis

Floor Layer

USOE Instructional Group Code: 17109901
DOT Number: 864.481-010

ODE Specialists:
Ralph Little, Construction
John Barton, Curriculum Development

Date Analysis Completed: January 26, 1979

Analyst:
Dick Olsen, Business Representative, Linoleum and Carpet Layers Local 1236, Portland

Task Inventory Review Committee:
Kent Howell, Artcraft Linoleum Co., Portland
Paul Beck, Artcraft Linoleum Co., Portland
Rod Beiler, Artcraft Linoleum Co., Portland
Ron Winkler, Bennett and Williams, Inc., Portland
Lionel Walklaite, R & L's Classique Floors, Inc., Portland
Ray Thompson, R & L's Classique Floors, Inc., Portland

TASK INVENTORY

FLOOR LAYER
Job Title

DICK OLSEN
Analyst

INSTRUCTIONS:

List each manipulative and knowledge skill relating to the job listed above. To the right of the page are three sections of columns asking specific questions about the Entry Level, Frequency of Performance and Instruction Attained At. An "X" should be placed, by the analyst, opposite each task in the appropriate box of the "ENTRY LEVEL" and "FREQUENCY OF PERFORMANCE" sections. Section three, "INSTRUCTION ATTAINED AT" is to be completed by state representative persons selected by the state department specialist.

Duty No.	Task No.	Task Description	Entry Level		Frequency of Performance			Instruction Attained at			
			Entry	On The Job	Small Amount	Average Amount	Great Amount	High School	Community College	On-the-Job Training	Related Training
1	0	LAYS SHEET FLOOR COVERING									
	1	Read blueprints and specifications	X				X				
	2	Sand underlayment with portable sander		X			X				
	3	Fill cracks and holes in underlayment with floorpatch		X			X				
	4	Select proper adhesive and seam sealer		X			X				
	5	Layout material for preliminary cut		X			X				
	6	Straight edge material for accurage fit		X			X				
	7	Inspect floor for cleanliness		X			X				
	8	Spread adhesive on floor with trowel		X			X				
	9	Lay material		X			X				
	10	Roll material with 75# metal roller		X			X				
	11	Cut final seam with linoleum knife and underscriber		X			X				
	12	Roll seam with small metal hand roller		X			X				
	13	Clean seam with soap and water		X			X				
	14	Clean tools with soap and water		X			X				
	15	Inspect job for quality		X			X				
2	0	LAYS VINYL ASBESTOS TILE									
	1	Read blueprints andspecifications	X				X				
	2	Sand underlayment with portable sander		X			X				
	3	Fill seams and holes in underlayment with floorpatch		X			X				
	4	Select proper adhesive		X			X				
	5	Layout room for tile installation		X			X				
	6	Inspect floor for cleanliness		X			X				
	7	Spread adhesive on floor with trowel		X			X				
	8	Lay material		X			X				
	9	Clean tools with mineral spirits		X			X				
	10	Inspect job for quality		X			X				
3	0	INSTALLS RUBBER BASE									
	1	Read blueprints and specifications	X				X				
	2	Clean and prepare walls to receive base		X			X				
	3	Fit base to walls and cabinets		X			X				
	4	Cut and form as required		X			X				
	5	Spread adhesive on back of base		X			X				
	6	Install base		X			X				
	7	Roll base with small hand roller		X			X				

TASK INVENTORY

FLOOR LAYER
Job Title

DICK OLSEN
Analyst

INSTRUCTIONS:

List each manipulative and knowledge skill relating to the job listed above. To the right of the page are three sections of columns asking specific questions about the Entry Level, Frequency of Performance and Instruction Attained At. An "X" should be placed, by the analyst, opposite each task in the appropriate box of the "ENTRY LEVEL" and "FREQUENCY OF PERFORMANCE" sections. Section three, "INSTRUCTION ATTAINED AT" is to be completed by state representative persons selected by the state department specialist.

Duty No.	Task No.	Task Description	Entry Level		Frequency of Performance			Instruction Attained at			
			Entry	On The Job	Small Amount	Average Amount	Great Amount	High School	Community College	On-the-Job Training	Related Training
3	8	Inspect for job quality		x			x				
	9	Clean tools with mineral spirits		x			x				
4	0	INSTALLS CARPET OVER PAD									
	1	Read blueprints and specifications	x				x				
	2	Clean and sweep floor		x			x				
	3	Install wood tack strip		x			x				
	4	Install metal edging at doorways		x			x				
	5	Install padding		x			x				
	6	Straight edge carpet seams for accurate fit		x			x				
	7	Join seams with heat tape		x			x				
	8	Install carpet		x			x				
	9	Inspect seams for proper fit		x			x				
	10	Inspect job for quality		x			x				
5	0	INSTALLS GLUE DOWN CARPET									
	1	Read blueprints andspecifications	x				x				
	2	Clean and sweep floor		x			x				
	3	Fill cracks and holes in floor with floorpatch		x			x				
	4	Layout material for preliminary cut		x			x				
	5	Straight edge carpet seam for accurate fit		x			x				
	6	Lay carpet in place		x			x				
	7	Spread adhesive on floor		x			x				
	8	Apply seam adhesive on carpet seams		x			x				
	9	Roll carpet with 75# metal roller		x			x				
	10	Clean excess adhesive with laquer thinner		x			x				
	11	Trim nap on seams if necessary		x			x				
	12	Inspect job for quality		x			x				
6	0	USES FLOOR LAYER TOOLS									
	1	Use 75# roller to roll vinyl and glue down carpet		x			x				
	2	Use linoleum knife to cut linoleum		x			x				
	3	Use dividers for scribing		x			x				
	4	Use underscribe for underscribing vinyls		x			x				
	5	Use butt scribe to scribe outside corners of rubber base and cove vinyl		x			x				

TASK INVENTORY

FLOOR LAYER
Job Title

DICK OLSEN
Analyst

INSTRUCTIONS:

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Duty No.	Task No.	Task Description	Entry Level		Frequency of Performance			Instruction Attained at			
			Entry	On The Job	Small Amount	Average Amount	Great Amount	High School	Community College	On-the-Job Training	Related Training
6	6	Use utility knife to cut seams in vinyl and									
		corners of rubber base		x			x				
	7	Use serrated trowel to apply adhesive on vinyls		x			x				
	8	Use mason's trowel to apply floorpatch		x			x				
	9	Use ruler to measure cuts and area		x			x				
	10	Use straight edge to straight edge material		x			x				
	11	Use small hand roller for seams and rubber base		x			x				
	12	Use small hand spreader to spply adhesive on									
		rubber base		x			x				
	13	Use claw hammer to nail metal edgings		x			x				
	14	Use stair tool to lay carpet on stairs		x			x				
	15	Use wall trimmer to lay carpet		x			x				
	16	Use carpet knee kicker		x			x				
	17	Use carpet power stretcher		x			x				
	18	Use metal miters		x			x				
	19	Use metal snips		x			x				
	20	Use hacksaw and miter box to cut metal		x			x				
	21	Use counter brush to clean up		x			x				
	22	Use combination file to smooth cuts		x			x				
	23	Use chalk line		x			x				
7	0	INSTALLS PLASTIC LAMINATE									
	1	Read blueprints and specifications		x			x				
	2	Fill holes and cracks in counter		x			x				
	3	Sand area to be covered		x			x				
	4	Layout material and cut to size		x			x				
	5	Measure and cut metal trim		x			x				
	6	Apply adhesive to material and counter		x			x				
	7	Apply adhesive to flange of metal		x			x				
	8	Allow adhesive to dry required amount of time		x			x				
	9	Apply laminate on counter		x			x				
	10	Scrape off excess material with router		x			x				
	11	Dress edge with file		x			x				
	12	Apply metal trim and backsplash		x			x				
	13	Clean counter and metal edges with solvent		x			x				
	14	Inspect job for quality		x			x				